

COMMERCIAL CAR JOURNAL

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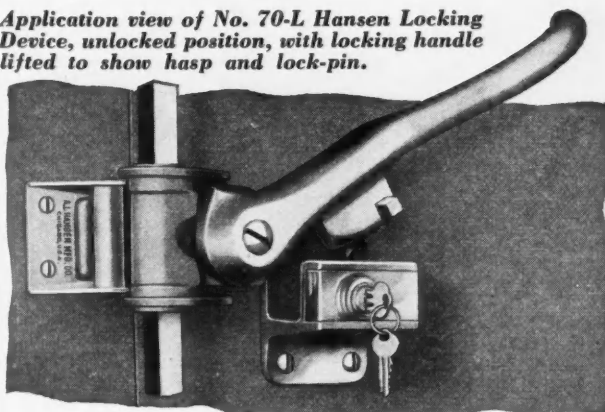
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COMMERCIAL CAR JOURNAL
AUGUST, 1936

Application view of No. 70-L Hansen Locking Device, unlocked position, with locking handle lifted to show hasp and lock-pin.



HANSEN LOCKING DEVICE for Refrigerator Locks

NOW! A tamper-proof method for securely locking refrigerator door locks. It's the No. 70-L Hansen Locking Device. It has a variety of key combinations. It is used with the Hansen Refrigerator Locks shown.

Can't Be Tampered With!

Tamper-proof! Steel lock-pin, when locked in place, can't be tampered with. Pin sets inside the flange of Locking Device and can't be reached when locked.

Replaceable Cylinder

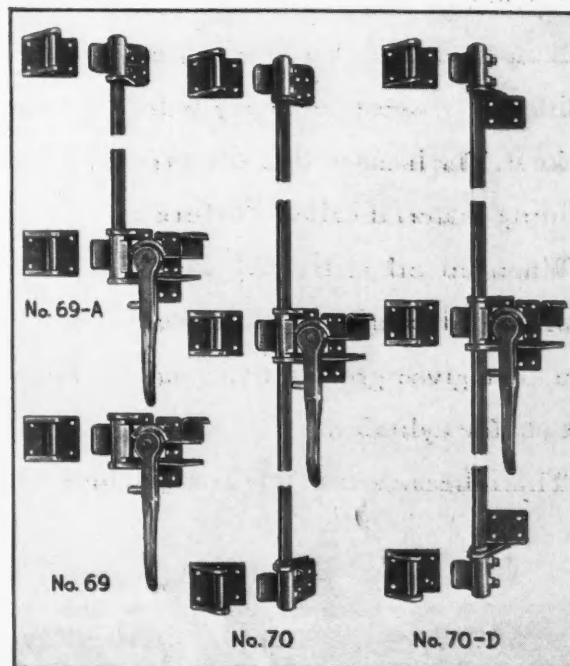
Cylinder can be removed and replaced, and a new key combination used, without otherwise changing Locking Device.

Ask for Details

A. L. HANSEN MFG. CO.
5047 Ravenswood Ave., CHICAGO



Hansen Locks on which Locking Device may be used



No more OIL

*New kind of Motor Oil gives
more miles per quart . . .
lessens cylinder wear . . .
lowers maintenance costs*



Now, Texaco has produced a new—entirely different—kind of oil that will bring further economies to motor truck operators everywhere.

A new crude . . . a new process . . . a new refinery . . . were necessary before we could make it. The basis of this new process is a new refining material called Furfural.

When an oil is treated with Furfural, a stronger lubricating film is produced . . . a film that gives greater resistance to heat in hot engine cylinders.

This is because the New Texaco Motor Oil is

all lubricant. Waste products, usually present to gum and stick piston rings . . . form carbon . . . or produce sludge in your crankcase, are removed. That is why this oil lasts longer and provides greater protection for the engines you operate.

A Texaco representative will be glad to provide practical engineering service to truck fleet operators to prove the economies you get with the New Texaco Motor Oil.

THE TEXAS COMPANY

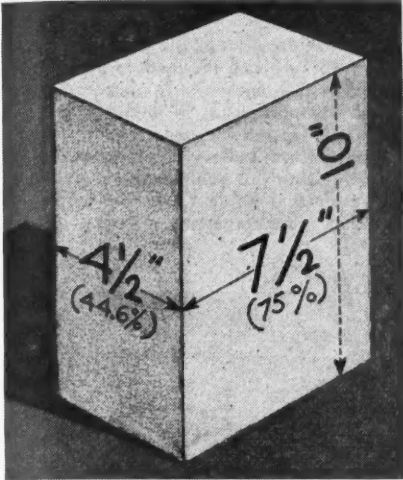
135 East 42nd Street

New York City

Nation-wide distribution facilities assure prompt delivery

New TEXACO

COMMERCIAL CAR JOURNAL
AUGUST, 1936



This tumbling block brake tester is simply a block of wood, the proportions of which are such that when placed on the floor of a car or truck it will tip over if the brakes are strong enough to meet the law. If the law requires a vehicle to be able to stop in 30 ft. from 20 m.p.h., the brakes must be able to exert a stopping force equal to 44.6 per cent of the vehicle's weight. The block to test this must have its width 44.6 per cent of its height. Even better brakes must have a stopping force of 75 per cent of the vehicle's weight. Such a block has its thickness 44.6 per cent of its height and its width 75 per cent of its height. When stood on end, flat-wise forward, it will tip over for the legal stopping rate, and, when stood edgewise, it will take very good brakes to knock it over.

A Mid-West Tip . . .

THE diesel article on page 12 is an example of fast work on our part that was nothing short of remarkable considering the thermometer-busting weather. In Columbus, Ind., last month Letsinger of Cummins had finished giving us a pleasant earful on his distribution policy. With an air of letting us in on a good thing he said he had been out on the West Coast and had learned that Anthony of the Pacific Freight Lines was collecting material for another diesel cost story along the lines of the one we published last December. "And," he added, "you should see the stack of mail he got as a result of that first article you ran. He showed me a file which I am sure would take a stenographer at least three months to handle properly."

. . . A Far-West Pip!

ON June 26 we wrote Mr. Anthony a "howsaboutit" letter, and on July 6 we

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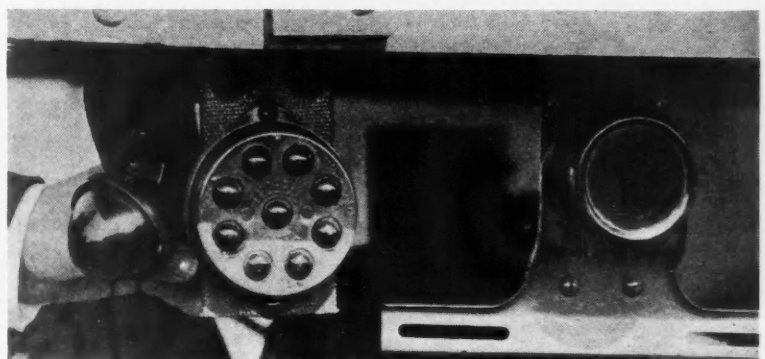
The Overload

had his letter allowing as how we had heard aright and that the article would be ready shortly. We began to have visions of a peachy article for September. On July 14 a couple of Pacific Freight Lines photographs were delivered. There was no explanation but we had a suspicion that was fulfilled when the airmail dropped the article in our lap on July 15. From that moment we worked frantically. We decided to use the article in August. That meant pulling out an article that was already scheduled. (But don't fret, you'll get it in September.) We had an idea for a layout that required wiring to Sterling Motor Truck for photographs. One photograph arrived airmail on the 16th but it wasn't what we wanted. That left us with what we had. We called in the art director and, stewing in our own juices at 105 in the shade, a satisfactory layout was evolved. It went into what we call the "works" immediately and came out on the 17th to make the engraving dead-line by the

thinnest of whiskers. The sigh we heaved broke the heat wave. And we hope the sigh you heave after reading the article will be one of satisfaction with a good job well done.

Candid Camera Confession

WE have something else to say about Mr. Anthony but you'll find that on page 20 where we have a better opportunity to be as expansive as the occasion demands. But before we go on to another topic we'll let you in on a mortifying secret. We think it's a secret because we can't imagine any layman with eyes sharp enough to detect our base trickery. Fact is, we have been guilty of the awful crime of using one "atmosphere" photograph three times in the last eight issues. Honest! The photograph shows activity on the Pacific Freight Lines platform. We used the entire picture last December. Last January we took the middle section and blew it up, and this month we use only



Tail lights and brackets that give but won't break is the new device being introduced by the Trailer Co. of America. Instead of mounting lights on a rigid bracket, they are attached to a heavy webbing suspended from the frame. The mounting is stiff enough to suspend the light vertically, yet bend back when hit by an obstruction and return to its original position when pressure is removed.

The Overload

the sides. Awful, isn't it? Well, this is a confession and we promise never to do it again.

Specifications "Galoreious"

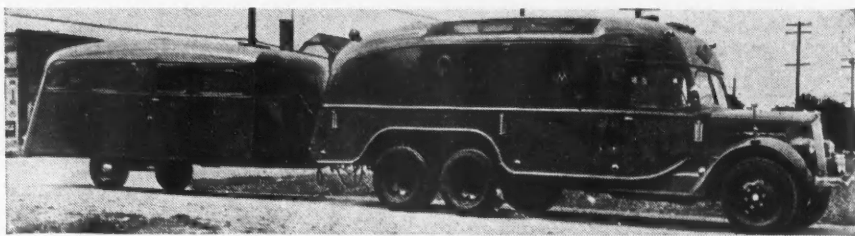
WE call your attention to the up-to-date revision of Front-End Alignment Specifications on pages 18 and 19. They were a headache when first we worked them up but we took the revision in our stride—thanks to the cooperation of the factories. For your convenience we have added specifications on some so-called popular types of passenger cars. And, by the way, three entirely new and original specifications tables are now in the making. We hope to publish two of them in September and the third in October if we should be unable to make September. These additions will bring our total number of specifications tables up to seven. What do you think of the idea of running all of the tables in one issue to serve as a reference book? We're willing to do anything you say, but for heaven's sake say it.



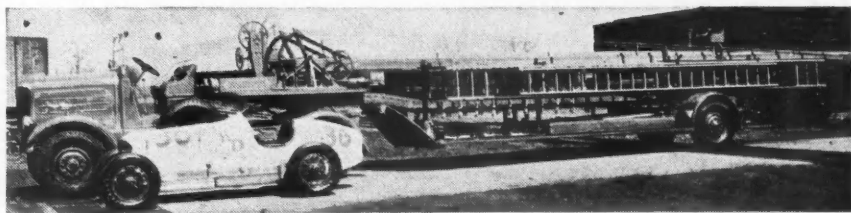
Dodge offers something new in the way of keeping bodies cool. This new light-weight insulated interior may be installed in standard commercial panel jobs. Insulation of the floor is provided by 2 in. of cork with 1 in. thickness of wood covering. Surface of floor is covered with galvanized iron extending up the sides 1 ft. Wall and ceiling is laminated wood and between it and the car panel and roof is a layer of Dry-Zero. Driver may enter from the front by means of a door. Double rear doors are insulated with Dry-Zero.

Shop Hint\$

THOSE Shop Hints on pages 22 and 23 represent practical fleet maintenance ideas of which we can never publish too many. We'd like to build the Shop



"Thar's gold in them thar hills." At least that is the refrain of Prospectors Moross and Dennis. So these scientific ditch-diggers equipped a truck and trailer with all the modern necessities of scientific exploring and a'prospecting they will go. The 1½-ton White truck is equipped with a four-wheel drive unit, under-drive eight-speed transmission, a 50 amp. generator, PPL booster brakes, one-cylinder air pump, a power take-off to run the generator to furnish electricity for the assay furnace, refrigerator and cooking, five gas tanks with total capacity of 140 gal. and six 50-gal. water tanks. The truck body containing this equipment was built by Ernest Schaefer, Cleveland body builder. Trailer is an all-steel Kabin Koach and contains beds, refrigerator, plumbing, dinette, toilet and storage space.



Here's the long and short of the four-wheel-drive. In the foreground is the 100-in. wheelbase special that finished fourth at Indianapolis this year and beside it is the 61½-ft. FWD aerial ladder unit just put in service by the New York City fire department.

Hints into a dèpartment that fleetmen would look upon as one of the most profitable in the book. Its value will depend, naturally, upon the willingness of fleetmen themselves to exchange information. Doubtless this idea of exchanging information needs a little stimulation. Therefore we are offering \$5 for every idea submitted and accepted for publication. And you can take it as a promise that, in order to get the exchange system started, we will not be overly critical of the ideas submitted. Look around your shop now and note the practices that ought to interest other fleetmen. Take snapshots of them, describe them in your own words, and shoot them in to us. We won't keep you waiting for the money.

Reo Permutation

THE flexibility of a truck on a highway is a well-known benefit; the flexibility of a truck in the matter of specifications is a headache that is better known to manufacturers than to fleets. Recently we were discussing the matter with Messrs. Thomas and Cullen at the Reo factory. "Give him that astronomical statistic," said Mr. Thomas, turning to Mr. Cullen. Said Mr. Cullen: "Well, we have figured out that if every change from a standard model that is requested by a customer were incorporated into a standard model, we would have a total of 3,800,000,000 models."

And, apparently, nothing can be done about it.



This attractive van operated by Overland Express of Detroit, was built by National Body Corp. Body is 12 ft. long, 6½ ft. wide and 6¼ ft. high inside. Capacity is 532 cu. ft. Construction is of oak screwed and glued in assembly and reinforced with steel strips. Rear has 28-in. drop tailgate and drop curtain. Interior is padded and has padded striker rails. Cab is de luxe equipped. Ford chassis is a 158-in. wheelbase.

The Transgressor Talks

OLD-TIMERS may like to be reminded that Negley Farson, author of the popular non-fiction book, "The Way of the Transgressor," is the Negley Farson who, back in the early 1920's, was Chicago branch manager for Mack. One portion of his biographical work deals with his truck and fleet experiences. Pick up the book at a circulating library—or buy it. It's interesting. (TURN TO PAGE 20, PLEASE)

To the GROUND

Midget Maneuver

We are now willing to be more specific about the "less than 200-cu. in. V8 engine" mentioned here last month. The size will be about 170 cu. in. if our spies have not been deceived and in turn deceived us. Furthermore, it is possible that the engine will be interchangeable with a four-cylinder engine of about 135 cu. in.

Bantam Back

The American Austin is well on its way back and the vehicle (passenger cars and a 1/4-ton truck) will be called the American Bantam. The sales talk will feature "100 miles for 50 cents" and who of all people would you guess is helping to design this economy into the trucks? No other than Harry Miller of racing fame.

Steam Statement

Hanging over our head until shortly after this year ends is the threat of a demonstration of a new steam truck. At the time of being exposed to the invitation to the demonstration we brought up all of the usual objections to the steam truck but they were met with such resolute answers that it seemed futile to think of any more. The condenser, it seems, is no problem at all if you have the right kind of a boiler.

Torsion Tattoo

Even before this hastily written warning reaches you a salesman may be knocking at your front door with a package under his arm asking you if you want to buy torsion bar suspension for your light trucks. The required parts are packaged and priced for at least one make of light truck. The inventor rode this spy around a choice bit of testing ground and gave him a boulevard ride in the back end of an empty truck. The dime did not move from its one inch penciled circle on the floorboard just over the rear axle until the ride was at an end and then we all snatched for it.

Passenger Car Preliminary

Those who are sitting calmly in their chairs under the impression that there will not be much change in the 1937 models are really preparing themselves for a shock. Unless some one is just "having our spies on" there is quite a bit of ado

at the factories where at least some lines are going to be completely re-designed. Watch for trick transmissions as a boon to the arm weary driver.

Trailer Tactics

Our trailer operative reports that at last he is sure that one of the important trailer makers will release an entire line of new semi-trailers within the next 60 days. He did not give us much of a lead on new features.

Fan Facts

A new cooling, ventilating and defrosting fan is about ready for market and to his horror our spy discovered that the maker had forgotten to include a guard to prevent injury. You can imagine his relief when he discovered that the blades were made of rubber and would not injure a finger if you deliberately stuck it into the fan.

Titian Top

If you can remember far enough back you had news of the copper insert cylinder head from this department's dependable detectives. The advance men proved their case about press time for this issue by presenting a description of the head manufactured by Federal Mogul. Details will be in the next issue.

Fan Fancy

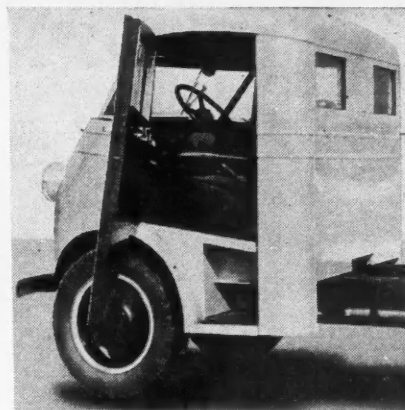
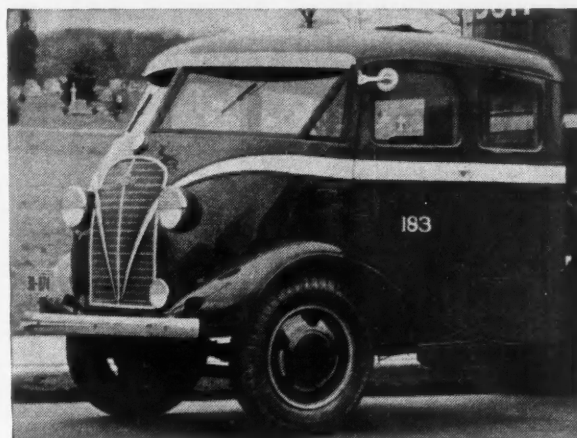
There is a defrosting fan about to be placed on the market which does not derive its power from an electric motor. It is driven by a flexible shaft which, in turn, is driven by a pulley in the fan belt train.

Dashboard Decorum

Our latest governor dispatches have been decoded and the gist of them is that a new governor with an instrument board adjustment has been perfected. Sixteen to 60 by a mere twist of the wrist.

U Joint Utterance

If you look at the 1937 model passenger cars from down under instead of gaping at the pretty paint our spies inform us that you will be sure to spot a universal joint of a new type which is inherently better balanced and at the same time has less mass to balance.



Here are two types of Chevrolet camel-back conversion jobs built by the Montpelier Mfg. Co., Montpelier, Ohio. The top photo shows the conversion with sleeper cab and below it is the standard cab, sans sleeper compartment. The Davidson Transfer & Storage Co., Baltimore, Md., operator of the sleeper cab, designed the sleeper job for the 1 1/2-ton, 131-in. wheelbase tractor chassis. To accomplish the conversion, the engine was tunnelled or shrouded. The sleeper compartment accommodates four men. Tool space is below. Details of the trailer used with this job are on page 27. For more information on this conversion job, check "A" on the coupon

FREE

(Check and mail to the Editor, Commercial Car Journal, Philadelphia, Pa.)

- ☐ A—More dope on Chevrolet camel-back conversion
- ☐ B—64-page Manual covering subject of Governors like a tent (Or check 110 on page 102, postcard)
- ☐ C—"Loading Chart" covering standard gauge primary wires.
- ☐ D—16-page book of Commercial Vehicle Accident Rates (A natural for fleets)
- ☐ E—Aluminum for Truck Body Construction, 28 pp.
- ☐ F—Bonney Tool Catalog, 55 pp.
- ☐ G—Dietz Motor Lites and Accessories Catalog, 32 pp., including six of lighting legislation

Name
 Title
 Firm Name
 Address
 City
 No. Trucks No. Cars

Refinements in Design **DROP** Diesel **MAINTENANCE COSTS**

Further Tests With 20 Vehicles by Pacific Freight Lines Show That Improvements in Diesels Have Cut the Cost of Repair Parts and Labor to .01672 Per Mile Compared With .01691 for Gasoline Trucks

IN the December, 1935, issue of the *COMMERCIAL CAR JOURNAL*, an article was published by this writer, dealing with the comparative costs of operation of trucks equipped with diesel and gasoline motors.

Following its publication, numerous letters were received from cities and towns throughout the United States, Canada, Mexico and from such distant points as Damascus, in Syria, and Bagdad, the capital of Iraq. All showed a keen interest in the subject, and requested additional information.

Requests have been received recently for current cost data, due, no doubt, to certain prognostications in the original article, which read as follows:

"It is felt that in a very short time, the maintenance cost of diesel equipment will be reduced to about the same level as the maintenance cost of gasoline-motored equipment.

"During the past year, very pronounced changes have occurred in the design of diesel engine connecting rods, pistons, liners, new types of valve rocker arms, valve guides, valve locks, valve keepers and injectors. The old parts are being replaced with those of new design as fast as they are perfected, and proved in the factory."

The results which advanced design has had on operating costs would appear to be of sufficient interest to warrant the bringing of the original article

up to date, reproducing sufficient of the original data to make the article complete within itself.

THE trucks used in this study belong to Pacific Freight Lines, which is now operating 86 trucks equipped with Cummins diesel motors and several hundred equipped with gasoline motors.

Pacific Freight Lines operates throughout Southern California and Arizona. In this territory there is a wide variation in operating conditions. In the main, the operations are all over primary highways, but numerous grades are encountered and temperature conditions range from the intense heat of the Mojave Desert and Imperial Valley to the moderate temperatures encountered in the operations between the cities lying along the Pacific Ocean, between San Luis Obispo and San Diego.

From this large fleet 20 Sterling trucks, of the same design, were selected for study. They were operated under the same conditions, same gross-weight load factor, in the same territory and over regular routes. They were all FC-135 models, having three axles, 10 tires, chain drives, auxiliary transmissions and were equipped with air brakes.

Ten of the trucks are powered by Cummins Diesel six-cylinder motors; the remaining ten with Waukesha, Model "AB" gasoline motors. Each of



the 20 trucks pulled, at all times, a six-wheel trailer; and under loaded conditions hauled the total allowable gross weight under California law, of 68,000 lb. The equipment was operated under an average gross-weight load factor of 70 per cent, or 47,600 lb.

A STUDY of the operating costs of these 20 pieces of equipment developed the fact that a few of the costs entering into the operation of both the gasoline and diesel equipment were equal. These costs were license fees, weight fees, taxes, garage overhead, tire expense, drivers' wages, and public liability and

TABLE No. 1

A Comparison of the Cost of Operating 10 Diesel
and 10 Gasoline Trucks

	GASOLINE TRUCKS	DIESEL TRUCKS			
	4 Months 1934	4 Months 1934	4 Months 1935	4 Months 1936	
Miles operated.....	184,536	268,488	247,732	205,580	
Fuel consumed (gallons).....	60,083	44,011	41,780	32,966	
Lubricating Oil consumed (gallons).....	1,150	1,859	1,723	1,269	
Cost of Fuel consumed.....	\$ 7,274	\$ 1,543	\$ 1,739	\$ 1,260	
Cost of Lubricating Oil consumed.....	\$ 543	\$ 865	\$ 790	\$ 619	
Cost of Fuel, per gallon*.....	\$.1211	\$.0351	\$.0416	\$.0382	
Cost of Lubricating Oil, per gallon.....	\$.4722	\$.4653	\$.4585	\$.4802	
Miles per gallon of Fuel.....	3.07	6.10	5.93	6.24	
Miles per gallon of Lubricating Oil.....	160	144	144	159	
Repair Parts and Repair Labor.....	\$ 3,120	\$ 5,630	\$ 5,452	\$ 3,438	
COST PER MILE:					
Fuel Cost.....	\$.03942	\$.00575	\$.00702	\$.00613	
Lubricating Oil Cost.....	\$.00294	\$.00322	\$.00319	\$.00301	
Repair Parts and Repair Labor.....	\$.01891	\$.02097	\$.02201	\$.01672	
Insurance One-half Investment.....	\$.00061	\$.00067	\$.00067	\$.00067	
Interest One-half Investment 6%.....	\$.00386	\$.00396	\$.00396	\$.00396	
† Depreciation 200,000 Miles.....	\$.02700	\$.02960	\$.02960	\$.02960	
Total Cost.....	\$.09054	\$.06417	\$.06645	\$.06009	
Diesel Net Saving per Mile.....		\$.02537	\$.02409	\$.03045	
Net Saving per 1,000,000 Diesel Truck Miles.....		\$ 26,370	\$ 24,409	\$ 30,450	

† Figured for life of 200,000 miles, less tires and 10 per cent trade-in value.



By C. G. ANTHONY, Vice President, Pacific Freight Lines, Los Angeles, Cal.

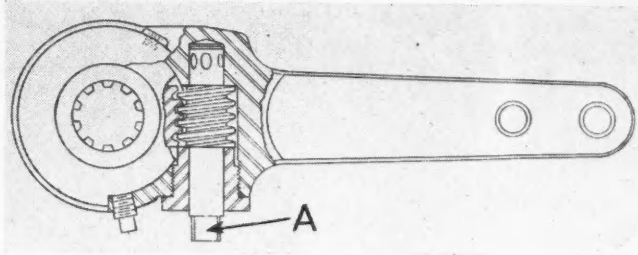
property damage insurance. Due to the fact that these costs were equal in each case, they were eliminated from the study.

The remaining operating expenses, viz.: fuel, lubricants, maintenance of truck, depreciation, interest on investment and fire and theft insurance, not

being the same for the two types of equipment, were carefully analyzed and compared.

A study was made of the ten gasoline motored trucks, for the first four months of 1934, covering gallons of fuel used and its cost, gallons of lubricating oil used and its cost, cost of repair parts and repair labor, and the number of miles operated. These data are accurate, fuel and oil having been measured to the fraction of a gallon, and total miles read from speedometers and checked against the trip records, to eliminate errors in miles traveled. The

(TURN TO PAGE 40, PLEASE)



Above—Bendix-Westinghouse slack adjuster.
Right—Bendix-Westinghouse governor details of which are given in the story

JUST why so many automotive mechanics should be doubtful of their ability to maintain air brakes properly is one of the industry's mysteries. Actually an air brake system is a comparatively simple bit of mechanism and for many years air systems have been maintained successfully by average mechanics in railroad roundhouses and trolley car barns. The average fleet mechanic can take air brakes in his stride without missing a step if he is willing to do just a little reading, use his head just a little bit and get some experience on this unit the same as he had to on gasoline engines, transmissions, clutches, etc.

Essentially, here is what happens in an air brake system:

The air is compressed by an engine-driven air compressor which charges a storage tank. A brake valve operated by the brake pedal controls the flow of air to the brake chambers in the braking operation and also discharges the air upon release of the brake. The brake chambers are connected to the brake mechanism at each drum. A governor controls the compressor operation and maintains the air pressure within a desired range. On brake application movement of the brake chamber or cylinder push rods rotates the camshafts thereby expanding the shoes against the drums.

Compressor Maintenance

IT will be well to remember in maintaining an air brake system that the air compressor is the sole source of power and treat this unit with the care to which it is entitled. Compressors do not require much work if preventive measures are used to keep them operating efficiently. The following operations are suggested as compressor maintenance procedure:

1. Check oil level daily if unit is self lubricated. Change oil when changing crank case oil.

Service Tips On *Air* BRAKES

Step-by-Step Maintenance Instructions That Prove There is Nothing Mysterious About Air Brakes and That They Are Easy to Service

2. Remove cylinder head and clean carbon from pistons, valves, valve seats, springs and air passages every 10,000 miles.

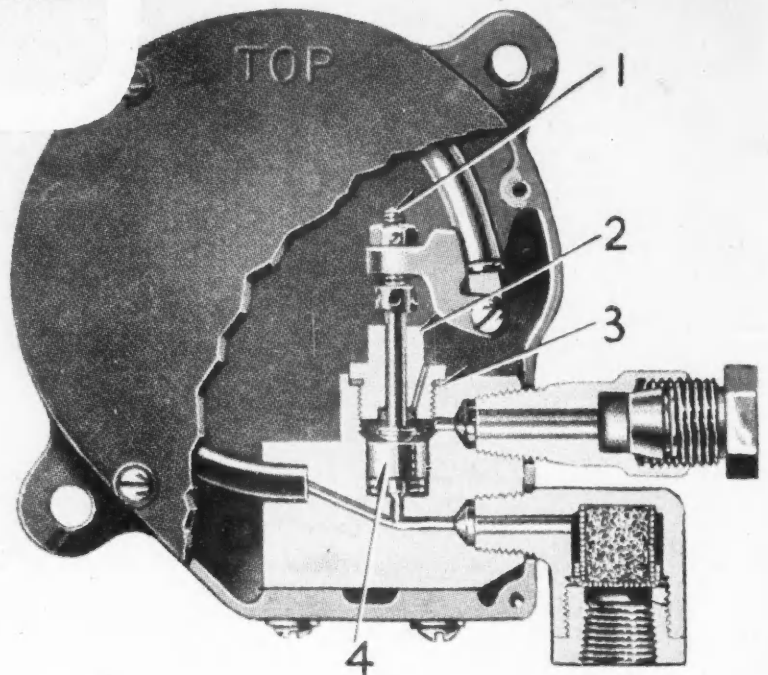
3. Reseat or replace exhaust and unloading valves, and use soap, not grind-

ing compound, to lap valves every 10,000 miles.

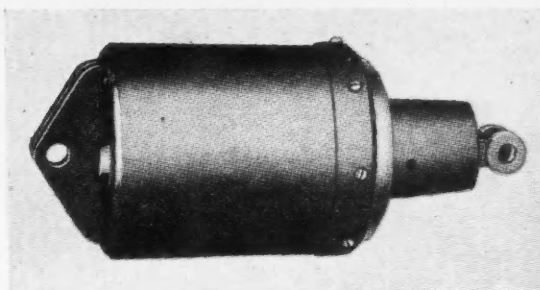
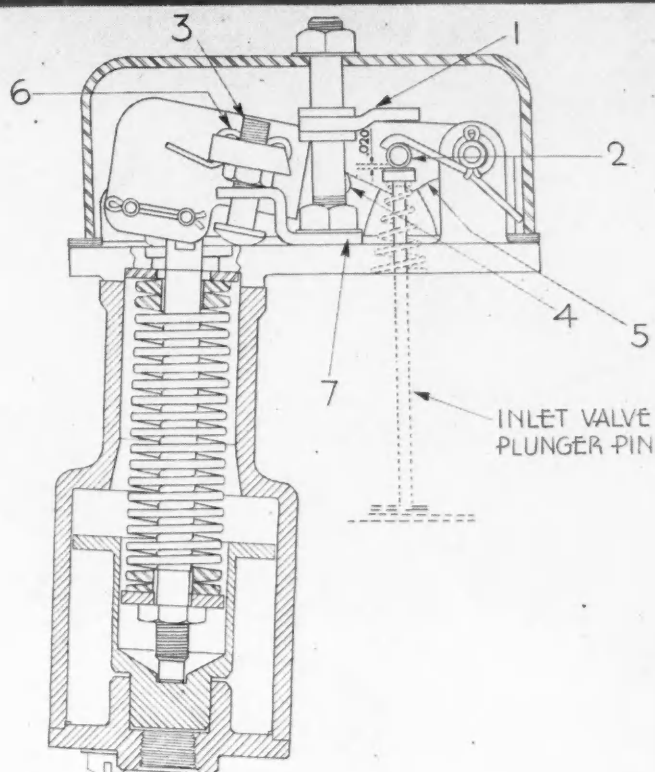
4. Adjust unloading valve to .010-.015 in. clearance (Bendix-Westinghouse).

5. Wash curled hair from air strainer

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AUGUST, 1936



Editor, Commercial Car Journal



Above—Midland-Christensen brake cylinder. Left—Midland-Christensen governor

1. Screw down the adjusting screw (No. 1, Fig. 1) which increases the tension on the tube.

2. To increase the "cut in - cut out" pressure range remove one or more shims (No. 3, Fig. 2) from underneath the upper valve guide.

Midland Christensen

THE normal Midland Christensen governor range is 90 lb. to 110 lb. The adjustment however is different. To adjust the Midland Christensen governor for pressure:

1. Remove sylphon housing by removing two screws holding it to governor base.

2. Pressure can be increased by taking up on the nut at the lower end of the spring or can be decreased by letting off on this nut.

To adjust for minimum governor range the following steps should be taken in the order given.

1. Remove governor top and air cleaner. Have compressor running but disconnected from reservoir.

2. Adjust trigger stop (No. 1, Fig. 2) (TURN TO PAGE 46, PLEASE)

in kerosene and saturate with light engine oil every 10,000 miles. If truck is operating under dusty conditions wash and lubricate curled hair every 5000 miles.

6. Check drive alignment and see that all mounting bolts are tight. Be sure to use gaskets of correct thickness in re-assembly.

7. Remove and inspect compressor at 50,000 miles and recondition if necessary.

To test compressor run it at its rated speed while connected to a reservoir. With a 1/16 fixed opening relief, the compressor should maintain 35 lb. pressure at reservoir. Excessive carbonization is the result of using unsuitable oil or operating the compressor under too high a pressure.

Testing & Adjusting Governors Bendix - Westinghouse

FITTED to the compressor is a governor to limit the pressure to a predetermined maximum and to start the compressor working when the pressure drops to a predetermined minimum.

To test the Bendix Westinghouse governor for leaks:

1. Remove cover plate.

2. With governor "cut in" (compressor operating against pressure) cover exhaust port (No. 2, Fig. 2) with

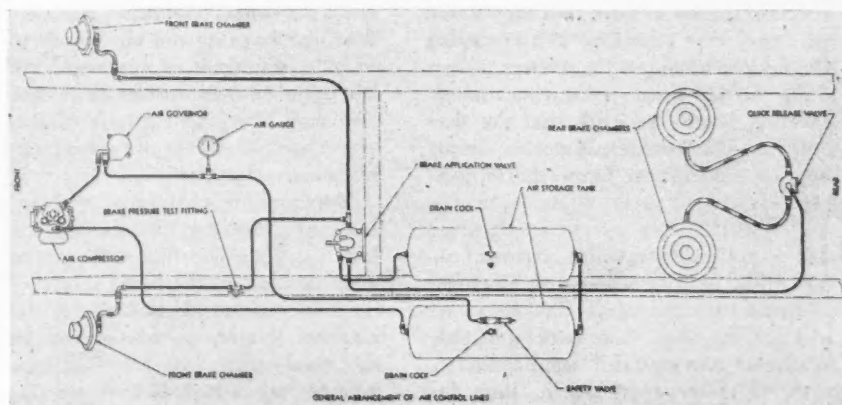
soap suds. If there is leakage it will be caused by the lower valve (No. 4, Fig. 2) not seating properly.

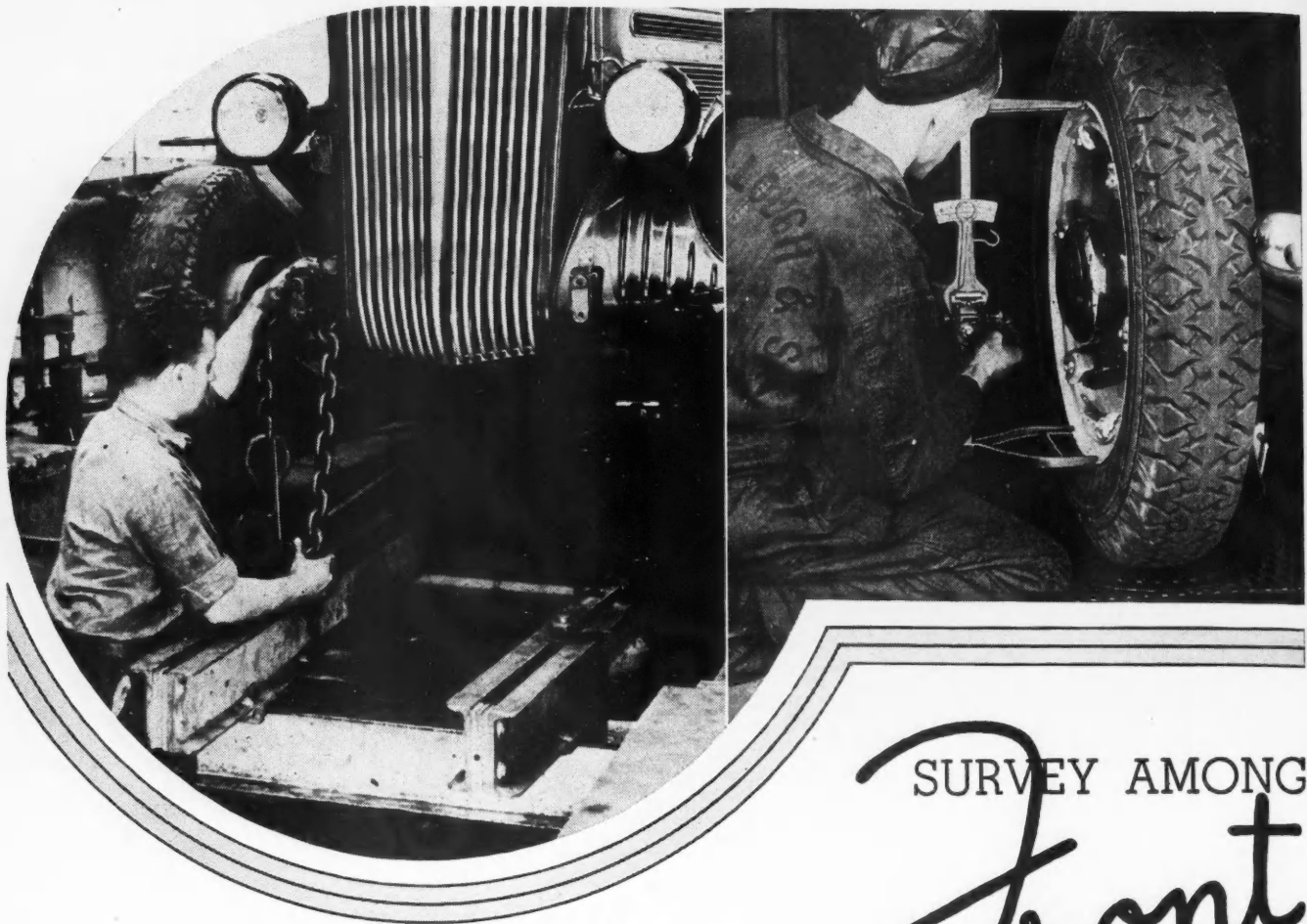
3. With governor "cut out" cover exhaust port with soap suds. If there is leakage it will be caused by upper valve not seating properly.

(If leakage in either of these tests exceeds a 3 in. diameter soap bubble in 3 seconds the valve leaking should be removed, cleaned and lapped with soap to a tight seat.)

The "cut in" pressure should be 85 lb. and the governor should allow a range of about 20 lb. To raise the cut in pressure:

Diagrammatic drawing showing a typical air brake hook-up





SURVEY AMONG *Front* ADDS 30%

FLEET operators reporting to COMMERCIAL CAR JOURNAL indicate that periodical inspection of front axles with front-end alignment equipment and the correction of faults thus disclosed results in 30 per cent longer front tire life. This saving, if we judge correctly the tone of fleet operators' reactions, is the chief economy that makes periodical front-end inspection worth while.

The reports also revealed that every third inspection with equipment discloses to the fleet operator something he did not know but wanted to know. Taking from the fleet operators the percentage of time that the front-end inspection results in work that they would not have done otherwise and averaging the figures produces the answer 33 per cent. So one-third of the time the inspection results in work that the fleet operator otherwise would not do simply because he did not know that it was necessary.

IN its effort to procure practical information on the subject of front-end alignment, COMMERCIAL CAR JOURNAL, with a little fast foot work was able to contact 53 fleets and compile the results of their experience in time for

this information to accompany the front-end alignment specifications in this issue. These 53 fleets operate 3378 vehicles and this figure can be divided into 2315 trucks and 1063 passenger cars.

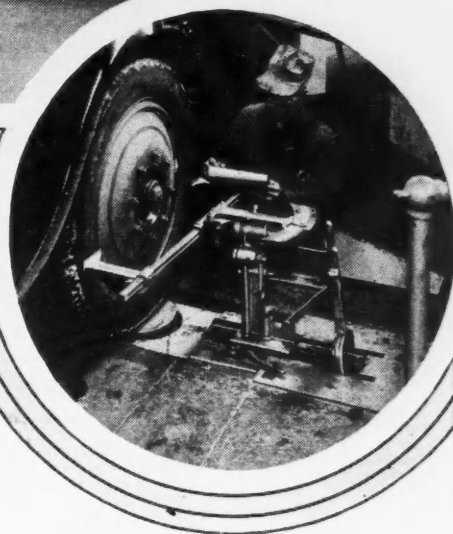
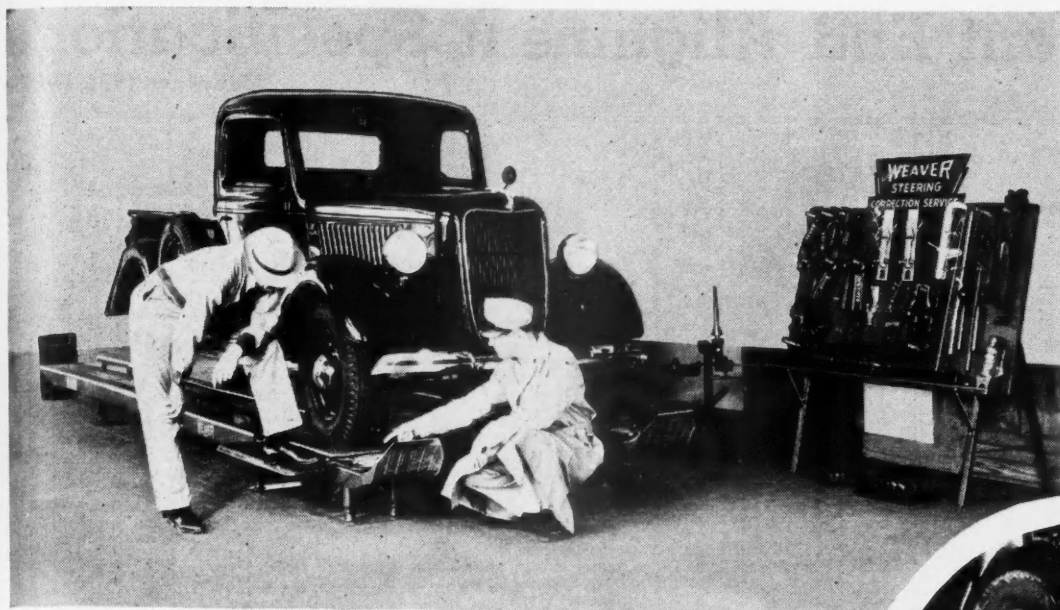
From these 53 fleet operators we learn that "no regular time" is the most popular inspection practice. Twelve fleet operators follow this practice when it comes to checking for toe-in. These operators, of course depend upon some indication that something is wrong before they check the front axle toe-in.

The practice changes somewhat on checking wheel camber. An even 20 fleet operators do not check this phase of axle alignment at any regular time. The number increases to 22 in connection with checking for axle caster and stays at that figure on checking for king-pin inclination.

More complete information along this line indicates that 25 fleet operators look for excessive tire wear or certain wear designs on the tread as a tip that the front axle needs looking into; eight mention shimmy as one of the things that sends them into action alignment-minded; seven include hard steering as

HERE are the practical questions on front-end alignment answered by 53 fleets:

1. How often are your trucks checked for toe-in, camber, caster and king pin inclination?
2. Is the work done in your own shop or is it farmed out?
3. If work is farmed out what fee do you pay for inspection?
4. What percentage of the regular inspections result in work that you otherwise would not do?
5. If the front-end inspection is farmed out is it a flat fee contract basis with one shop?
6. What is your opinion of the flat fee contract basis inspection?
7. How much in percentage does regular inspection save in front tire costs?
8. If you do not have front-ends checked in regular periods, what condition serves as a warning that they need checking?



Longer tire life and easier steering are some of the benefits of accurate and periodic wheel alignment. Equipment shown on these pages are of (L to R) Bear, Bendix, Weaver and Bean

FLEETS SHOWS PERIODIC *End* ALIGNMENT TO TIRE LIFE

53 Fleets Operating 3378 Vehicles Say Regular Inspections Also Result in 33 Per Cent Additional Work Which Otherwise Would Be Overlooked

important in their diagnosis; two speak of wander; two depend upon driver's reports; one refers to loose steering and one fleet operator looks to the front end only in the event of collision.

These figures showing the wide variety of practices followed may leave the front-end alignment enthusiast with a distinct feeling of nostalgia because the lack of uniformity may tend to have one believe that front-end alignment has not progressed to any scientific basis. If any of our readers so suffer we beg leave to call attention to the fact that every survey attempt of COMMERCIAL CAR JOURNAL so far has shown a wide variety of opinion and practice and all of them, no doubt, with some merit. Included in our researches, which defied

any given conventional practice from one end to the other, were surveys on such old institutions as oil drain periods and methods of cylinder reconditioning.

BUT to return to those fleets which do have a regular inspection for front ends it is apparent that more fleet operators inspect the toe-in, than inspect camber, caster and king-pin inclination and furthermore toe-in receives more frequent attention than do the other related phases of front-end geometry. The details are: 14 fleets check toe-in monthly; five every 6 months; four every 90 days; three every 15 days; three ever 2 months; three ever 2500 miles; and three every 3000 miles. Sliding down the numerical scale of popu-

larity we have: two inspects every four months; one inspect yearly; one inspect every 12 to 18 months; one every 10 days; one on driver's report, and one every 5000 miles.

The fleets that check camber monthly drop to seven, and seven fleets check camber every six months. The order is: three check every 15 days; three every 90 days; two every 2 months; one every year; one every 12 to 18 months; one three times yearly; one on driver's report; one every 2500 miles, one every 1000 miles; one every 5000 miles; one every 20,000 miles, and one does not check camber.

Caster fares about as well as camber when it comes to periodic attention.

(TURN TO PAGE 20, PLEASE)

FRONT-END ALIGNMENT

(CONTINUED FROM PAGE 17)

Seven fleets check every six months; six every month; three every 15 days; three every 2 months; three every 90 days; one three times yearly; one every 6 weeks; one every 12 to 18 months; one every 1000 miles; one every 5000 miles; one every 20,000 miles; one on driver's report, and one makes no check.

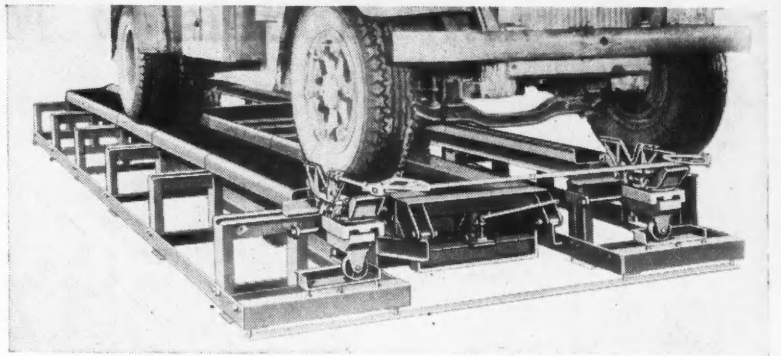
King-pin inclination gets less attention than the other factors. Eight fleets check every 6 months; four every 15 days; four every month; three every 2 months; three every 90 days; two three times yearly; one yearly; one every 12 to 18 months; one every 1000 miles; one every 5000 miles; one every 20,000 miles, and one on driver's report.

These statistics, while not conclusive of anything of a concrete nature, do prove that front-end alignment has come in for a great deal of attention among fleet operators. These various intervals have probably been carefully thought out. The wide difference is no doubt caused by differences in types of vehicles and operating conditions.

TWENTY-EIGHT fleets do front-end alignment work in their own shops and several mention along with this information that their own shops under their own supervision is the only place in which they have been able to get work of this kind performed up to their standard. Fifteen fleets farm this work out to alignment specialists and there is nothing to indicate that there is any reason to be dissatisfied with the results. Neither is there any thing to indicate that this is done solely for the reason that the fleet is scattered and that it is physically impossible to have the work done in the fleet shop. Eight fleets do some alignment work in their own shops and farm out part of the work. These eight fleets gain some advantage from this practice even if their own ideas lay along lines of either doing all of the work themselves or farming out all of the work, but operation of the fleet makes the divided practice necessary. Having the work done partly in each of two places makes it possible for each shop to provide a constant check upon the other one.

The fee for having alignment work done outside the fleet shop varies but within a fairly narrow range. Ten fleets do not pay for inspection but get the inspection free of charge and pay for work of a correctional nature only. One fleet pays a flat fee of \$4.50 for an inspection including all correction work necessary. One fleet pays \$5 for the same job and another pays \$6.

Two fleets pay \$1 per inspection; one pays \$1.50 per inspection, and one pays



Bee Line equipment for front-end inspection and correction

\$2 per inspection, while still another pays \$1.25 per hour for work of an inspectional nature.

Following close on the heels of these financial arrangements is a report on fleet operator opinion on the flat fee contract with one shop as a method of handling front-end work. Eight shops handle their work that way. Twenty-one fleets report that they do not. Sixteen fleets do not consider the flat fee contract basis as a desirable method of handling fleet work. Thirteen like this method and three say that they do not know much about it having had no experience with it.

Another interesting point has to do with the shop equipment required to do alignment work. Not one fleet shows any desire to use home made or make-shift equipment. Nine fleets are at the moment using equipment which they made themselves but when asked what equipment they preferred the home-made arrangements do not appear once as a preference.

Cost Studies Coming

GOOD news deserves to be shared. It is a pleasure, therefore, to convey to fleetmen news of a series of articles written by C. G. Anthony, vice-president, Pacific Freight Lines, Los Angeles.

The first article is in this issue. "I have practically completed two other articles," Mr. Anthony writes. "One deals with the transportation of gasoline between Los Angeles and Arizona, with full costs for both diesel and gasoline equipment. The other deals with the costs of operating different sizes of equipment, and suggests and outlines a scientific method of determining costs accurately. I have also under way an article dealing with the comparative costs of transporting freight by gasoline truck, diesel truck, rail and water, showing the economic field in which each mode of transportation excels."

Mr. Anthony is a registered civil engineer who graduated from the railroads to trucking. He is a recognized expert on transportation problems and his articles will be in the nature of expert testimony on operating matters of interest to all fleetmen.

The second article will be published in September.

THE OVERLOAD

(CONTINUED FROM PAGE 10)

The MMWAAC

THE golf world has its Hole-in-One Club, the racing world has its 100-Mile-an-Hour Club, and right here we organize the Million-Miles-Without-an-Accident Club. On the list of charter members we place the name of B. W. Gibbs, Gulf Refining Co. salesman, of Collingswood, N. J. In 19 years of driving motor vehicles in his work for Gulf he has covered over a million miles without a single accident of any kind, according to his company. Gulf assures us that it tabulates as a chargeable accident even such minor mishaps as damaged fenders. Who's next on the list?

Touting Two Tests

WORKING on the theory that fleet operators are interested in all tests of motor vehicles, we present the facts of an AAA test run on page 25. Here are the results of another test conducted through the cooperation of the Detroit Police Department: A Ford 1½ ton truck equipped with a six-wheel unit and carrying a gross load of over 22,000 lb. was stopped in 27 ft. from 18.6 m.p.h., as against a legal requirement of 40 ft. at 20 m.p.h. The truck was equipped with Linderman brakes in connection with standard Ford 14x2½-in. drums.

Free Offers

THE steady requests for material that we get as a result of the free offer coupon on the Ears to the Ground page (11) encourage us to list another bunch of offers this month. The only remark we desire to make about the offers here is that if we were convinced they had no value to our readers, we would be the last to offer them. Look the offers over and X-press your choice.



Emergency treatment for themselves as well as for the public is one practical result of first-aid training. Right—Driver Matthew Hughes, who aided a carbon monoxide victim, displays the contents of a first-aid kit



TRAINING DRIVERS IN FIRST-AID

Makes Trucks Mobile Ministers of Mercy

Playing Interne to the Injured Provides Sears, Roebuck With a Hypodermic That Stimulates Goodwill

NOW is the time for all good drivers to come to the aid of the injured. A least, so thought A. M. Saylor of the traffic department in the Philadelphia branch of Sears, Roebuck & Co. And so today, all Sears, Roebuck drivers and helpers are trained and qualified to give first-aid treatment. And each truck totes a first-aid kit of the conventional type containing necessary bandages and antiseptics for the cleansing of wounds and binding of injuries and for stopping the flow of blood.

"This first-aid idea," says Mr. Saylor,

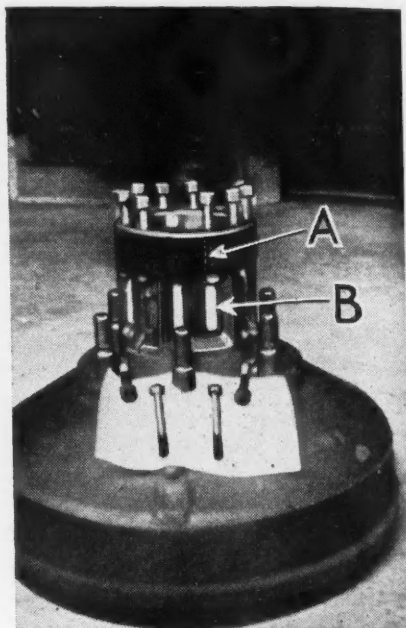
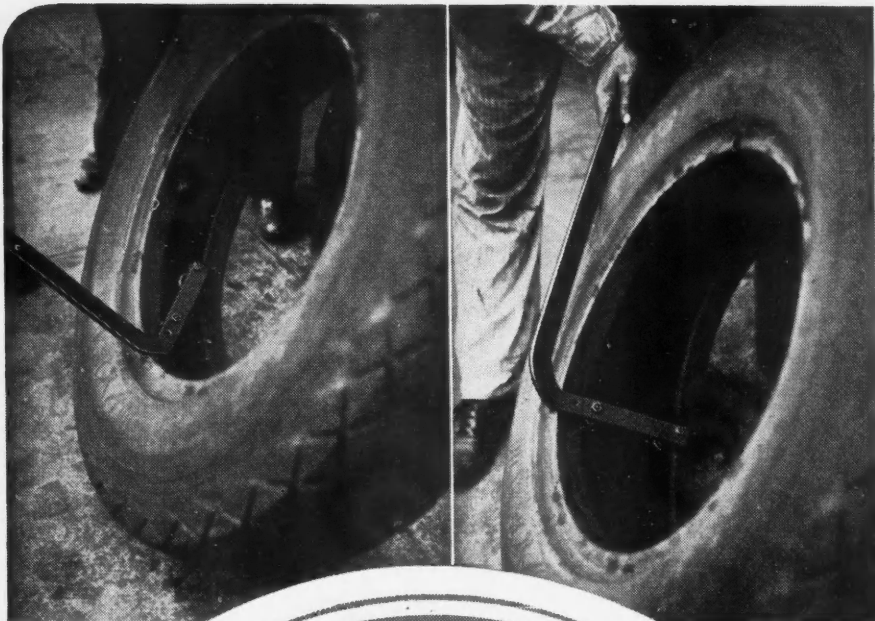
was instigated not so much to have the men serve as an emergency medical corps, but rather to have them lend temporary aid to the public whenever and wherever needed. Again, should a driver or helper injure himself in the line of duty, one or the other will be able to treat and bind the injury. But for this emergency first-aid, drivers and helpers are likely to disregard injuries until after returning to the terminal or they might neglect altogether to report such injuries. One can never tell when a neglected cut or bruise may de-

velop into something very serious."

The fact that Sears, Roebuck's delivery men are trained in first-aid has considerable value in promoting good will among the general public. In the few months in which these drivers have been operating, several cases have been reported by drivers in which they arrived at the scene of an accident in time to give first-aid to injured victims. There is little doubt that such acts on the part of Sears, Roebuck drivers and helpers make an impression on the public and make that public feel kindly toward a store whose representatives are so courteous and competent.

THE psychology of the first-aid idea, of course, is to have the drivers act as goodwill representatives between the store and the public with trucks serving somewhat as field ambulances in the safety war against accidents. All drivers and helpers were given regular training in first-aid methods by the company's resident doctor and after a

(TURN TO PAGE 78, PLEASE)



Illustrations of "Shop Hints" discussed in Flange Stud Trouble; Cooling Valve Seats.

Shop Hints

from FLEET SHOPS

That Solved Truck Problems
Which May Be Plaguing You

UNITED PARCEL SERVICE, N.Y.C.

Cooling Valve Seats

IN order to eliminate cracking and distortion of valve seats caused by overheating at the valve seats, a shop-built water manifold has been installed on a number of engines. So far no trouble has been experienced on engines so equipped and some of them have been operating for some time. It is now the plan to tap some cylinder heads and determine just how much

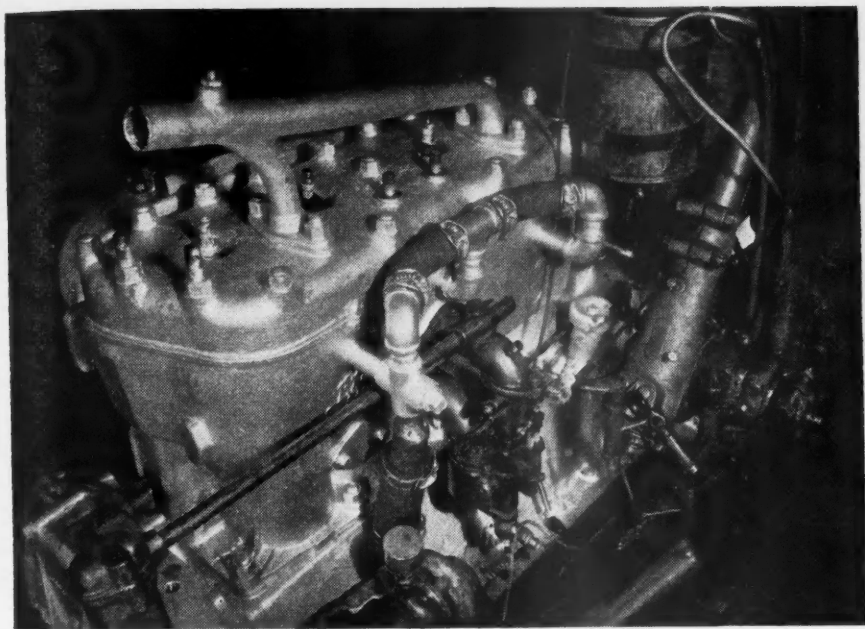
cooler the valve seats are on the engine that have the manifold than those not so equipped. This has not been done as yet.

The water originally was pumped from the pump into a port in the side of the block close to the pump but far away from the valves and seats. This pump-to-port connection was discarded and a water tight cover made for the port. The block was then drilled and tapped for $\frac{3}{4}$ -in. pipe at three points equidistant for length front to back and located just below the head. Then a water manifold was built up of $\frac{3}{4}$ -in.

pipe with the necessary hose, elbows and connections.

Three copper nozzles were made in the shop. These nozzles were made from 7-in. lengths of copper tubing. One end was plugged and spray holes were drilled along the nozzle near the plugged end. The open end of the nozzles were brazed into the $\frac{3}{4}$ -in. pipe that enters the block. Thus the cool water from the radiator is delivered from the pump into the water manifold on the pump side of the block and is forced into the nozzles from where it is sprayed around the valve seats.

COMMERCIAL CAR JOURNAL
AUGUST, 1936



the articles are of (left to right) Handy Tire Spreader; Correcting Rear Wheel Hub to Axle
Fig. 1—For Smooth Acceleration; Fig. 2—Stopping Crankshaft Oil Leaks

Plugging Cracked Blocks

CRACKS in valve seats have been repaired by cutting out a section of the block about $\frac{5}{8}$ in. wide and long enough to cover the crack. This section is filled with a force fit cast iron plug bevelled at the seat-end so that the replacement seat will fit down on top of it. The plug which is .0015 in. larger than the cut out section is inserted with the block slightly warm and then the valve seat is installed. No crack repaired this way has given any trouble.

Re-enforcing Skid Chains

WELDING metal lugs on the road surfaces of skid chain cross links was tried last winter as a means of making the cross links last longer. Stellite lugs were welded on some cross links and nickel iron lugs on others. The chains thus treated did not wear out by the time the streets were cleared so the exact mileage of the chains with the welded lugs is not known but they will wear considerably longer than the original chain; with the Stellite giving longer life than the nickel iron but costing more. The experiment does not look too promising from an economical standpoint yet as cost of welding either metal to the chains is relatively high.

Stops Studs from Pulling Out

A NUMBER of studs pulled out of aluminum flywheel housings and crankcases. When this happened the hole

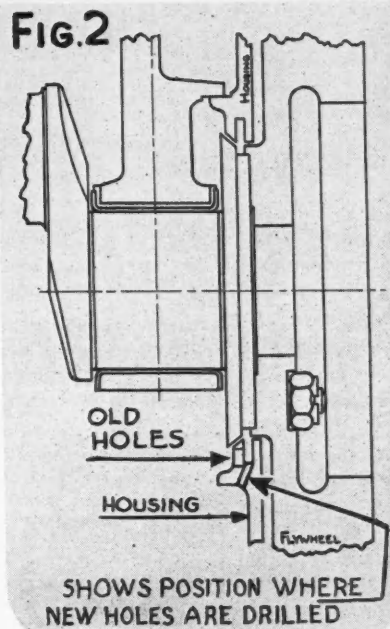
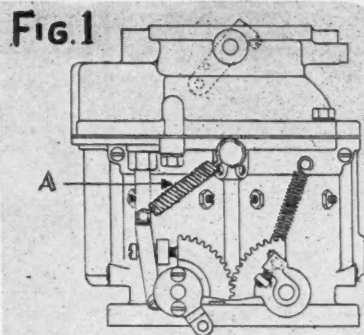
was drilled out from $\frac{3}{8}$ in. to $\frac{1}{2}$ in. and then tapped. A $\frac{1}{2}$ -in. brass screw is then inserted and cut off flush with the surface of the work and then the brass screw is drilled and tapped for $\frac{3}{8}$ in., the original size of the stud. It takes 15 minutes or less to do this job and no studs have pulled out after it has been done.

A NEWS PAPER FLEET, N. Y. C. For Smooth Acceleration

ON some of our trucks the drivers complained that the accelerator had no "feel." It was impossible to accelerate them smoothly. When the accelerator was stepped on nothing happened for a moment and then the truck jumped ahead. The result was broken axles and clutches pulled out.

The trouble was finally traced to the carburetor where it was found that the lever which operates the accelerating pump shaft is at a slight angle to the shaft but sufficient to give it a slight side thrust which causes the steel shaft to stick in the aluminum bushing and then let loose all at once with the resultant loss of "feel" in the accelerator.

By installing a spring of correct tension to the pin which is the joint between the lever and shaft and to another convenient point the sticking was eliminated and the trouble overcome. The spring installed to overcome this trouble is marked A in the cut of Fig. 1. Note that the spring pulls against the angle created by the shaft and lever.



Correcting Rear Wheel Hub to Axle Flange Stud Trouble

TROUBLE with pulling out the rear wheel hub to axle flange studs became chronic on some of our trucks and every time it happened it meant a new hub which costs real money. To avoid buying new hubs the stud hole was drilled clear through that part of the wheel hub which has the same diameter as the flange and the drilling was continued until a channel or groove was made for about 3 in. at the circumference of the small diameter section of the hub. This operation was performed at each stud hole.

Nickel steel bolts of the correct size were purchased and by grinding the head down to the bolt diameter for a trifle more than halfway around the head, it was possible to insert the bolt in the groove and push it through the hole in the larger section of the hub. Thus the flanges were bolted to the hub with nickel steel bolts and nuts and not one of them has given trouble. It takes \$1.20 worth of material and about one hour's time per wheel to eliminate the trouble.

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EDITORIAL COMMENTS

After Hours

BY GEORGE T. HOOK EDITOR

"Swing Music"

A NUMBER of manufacturers have admitted to us that one of the most encouraging aspects of the current business upswing is the swing of buyers away from penny-pinching practices and in the direction of a rational attitude toward the purchase of equipment adequate for the work to be performed.

If this trend is a fact—and there is no reason to doubt that it is because it is a logical trend—the entire industry has much to be thankful for.

One of the most deplorable developments of the depression was brought about by the restriction of capital outlays. The natural tendency of purchasers was to make what little money they had to spend go a long way. The result was an unprecedented wave of underbuying and overselling of transportation equipment. Some of the relics of this excusable madness may still be seen—and heard—grinding their way up 4 per cent grades at 4 miles an hour or worse, to the annoyance of all other traffic, and to the unrestrained glee of the enemies of highway transportation.

Therefore, if there is a growing tendency among users to give greater consideration to performance as a highly desirable characteristic of transportation equipment, it is a welcome indication of a return to sound buying. Not the least of those who will be grateful for the change are the harassed fleet managers whose experience frequently dictated a course which management policies made it impossible for them to pursue.

The change in the attitude of purchasers is being noticed in other industries as well. There it is hailed as a "return to quality." In our industry we can more appropriately refer to it as a return to sanity.

Business Barometer

THE temper of business in general has no better barometer than the truck

industry. Back in 1930 when business started to slip, truck sales joined the toboggan because there was less to be hauled. In 1934 when business improved and there was more to be hauled truck sales staged a comeback. Just exactly what the status of business is today compared with the old boom days may be pretty accurately gauged by the fact that there seems to be an awful lot of business in need of hauling. So much, in fact, that in the first seven months of this year the truck industry enjoyed the best first seven months of domestic business in its entire history.

Our statistics show that, with July conservatively estimated, new truck registrations in the first seven months of this year were 375,000; a gain of 17 per cent over the 1929 record total of 321,000. At this rate sales for the year should hit an all-time record total of 600,000 without a struggle.

This is probably as good a time as any to point a scornful finger at the prophets of pessimism who, in the depths of the depression, predicted that the boom days were gone, never to return again. And the proper time to applaud the faithful and courageous individuals who so deeply believed in the possibilities of the American system that they forecast a future prosperity greater than any we had experienced. Whether we are on the threshold of that greater prosperity or not is relatively a minor matter. The important fact is that shirtsleeves are again turned up in earnest, and we are certain to earn as much as we dare to work for.

Political Potshot

AND that brings us to a political note.

The issues presented by agriculture, labor, unemployment relief and social security are important ones and will undoubtedly be as widely discussed as they deserve to be during the presidential campaign now gaining momentum. But to us the most vital issue, because

of its applecart-upsetting potentialities, is the one that was significantly stated by one of the candidates just the other night. He said:

"This is the most important question now before us: Shall we continue to delegate more and more power to the Chief Executive? Or do we desire to preserve the American form of government? Shall we continue to recognize that certain rights reside with the people, that certain powers are reserved for the States, and that certain functions are delegated to the Federal Government?"

The response of the audience that heard that statement left no doubt that the delegation of power is deplored, that the Constitution has lost none of its popular appeal, and that the rubber-stamps who comprise the 74th Congress can look to their jobs for their indelible stain on legislative history.

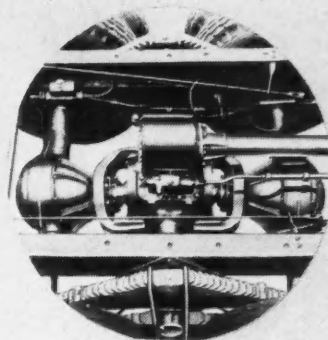
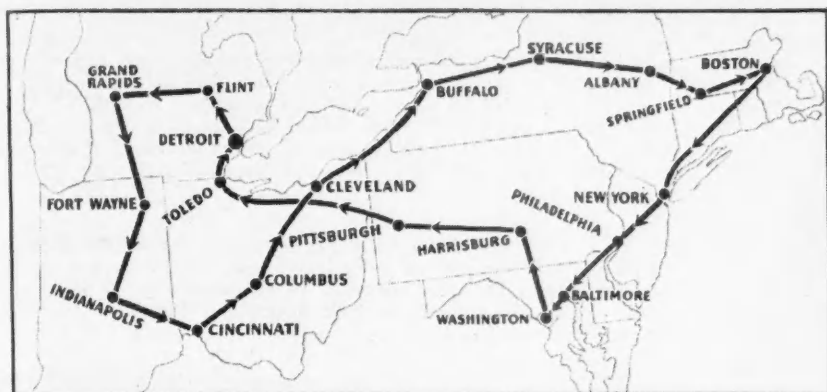
Contrast that statement with the statement of one of the other candidates: "In 34 months we have set up new instruments of public power in the hands of the people's government, which power is wholesome and appropriate, but in the hands of political puppets of an economic autocracy such power would provide shackles for the liberties of our people."

That, as we said once before, "is an appeal to sanction a benevolent autocracy. But, as Al Smith remarked, who wants an autocrat—even a good one?" Because so long as the "new instruments of power" exist "the liberties of our people" rest in the shadow of the "shackles."

Fiorello's Gripe Too

THE trucking industry should keep an eye on Mayor LaGuardia of New York City. Not pleased with the fact that New York City pays the highest automobile liability rates, he had a study made which revealed that New York City's accident rate is 9.3 per 100,000, or better than the other large cities, especially Chicago with 21.7 and Los Angeles with 34.4. In line with the results of that study he has petitioned the State Superintendent of Insurance to intercede with insurance companies for a reduction in rates to which New Yorkers were entitled.

The leading operators of the trucking industry have been trying for some time to get a reduction in rates commensurate with their accident experience. Having failed so far, they should root for Mayor LaGuardia so that a notable precedent may be set.



Left—Map shows the route taken by the Thornton equipped Chevrolet tractor in its 2639 mile economy run. Above it is the semi-trailer unit with its 30,620 lb. load certified by the AAA. Circle—Showing the Thornton Tandem drive unit with which the tractor was equipped

ON May 12, 1936, "Wild Bill" Cummings, 1934 Indianapolis winner and famed speed king, pulled up at the curb in front of General Motors' building in Detroit to be acclaimed by Chevrolet and Thornton Tandem officials. He had just completed the first truck economy run ever to be sanctioned and observed by the American Automobile Association, wherein the gross vehicle weight was 20 tons. The 1½-ton, Model B Chevrolet truck chassis, transformed into a six-wheeler by the installation of a Thornton Model AC four-rear-wheel-drive unit, hauled a 22-ft. Trailmobile semi-trailer with tandem axles and with a payload of 30,620 lb. from Detroit to Boston and back on a roundabout route covering 2639.9 miles. The run began on April 20.

Official figures certified by AAA observers concerning vital facts of the run are of interest to fleetmen. Fuel cost, oil consumption and road speed were particularly observed with the following results:

Total miles	2639.9
Gas used (gals.)	515.95
Average M.P.G.	5.117
Engine oil used (qts.)	3.7
Running time (hrs.)	134.01

A 20-TON

Economy RUN

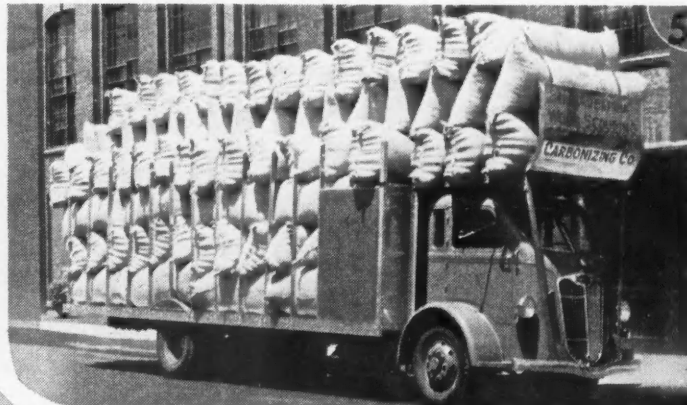
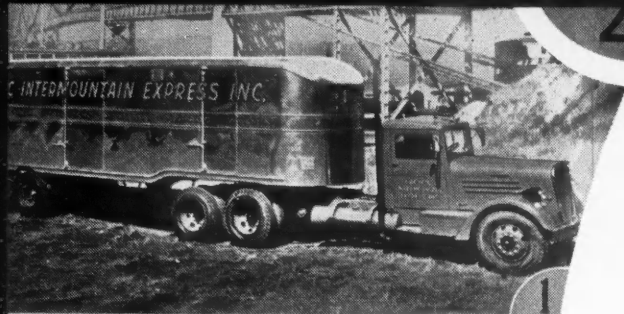
Covering 2639 Miles Has Results Certified by AAA

Fuel Costs, Oil Consumption and Road Speed Are Particularly Observed by AAA Shadowmen During Test of Chevrolet Equipped With Thornton Unit

Average M.P.H.	19.7
Tractor weight (lb.)	6700
Trailer weight (lb.)	4780
Payload weight (lb.)	30,620
Gross weight (lb.)	42,100

Payload ton-miles per gal. of gas	78.34
Gross ton-miles per gal. of gas	107.71

(TURN TO PAGE 48, PLEASE)



The Album

Of Modern Truck Transportation Equipment

1. ALUMINUM is the stuff of which this trailer body is made in its entirety with the exception of a fir floor, PLYWOOD inside lining and DRY-ZERO insulation. The body, built by RELIANCE Trailer and Truck Co., is 33 ft. long, 8 ft. wide, 7 ft. high and weighs 3,200 lb., or less than half the weight of the uninsulated 28-ft. body it replaced. KENWORTH tractor supplies pulling power.

2. A DODGE chassis of 1½-ton with 162-in. wheelbase sports this BODE-FINN refrigerated body. The body is insulated with DRY-ZERO in roof and sides and cork in the floor. Outside body panels are metal with copper bearing galvanized lining.

3. GMC truck Model T-18, 2½-ton chassis. The FINNESSEY-built body has removable rollers set on a slant with the exception of the rear roller so that the floor may be used to roll off the lumber. The rollers may be removed and the body used as a standard stake.

6. A REO 1½-2½-ton camel back with ultra-modern body. The unit is operated by Dominion Stores, Toronto. Access to the body interior from the curb is through the side door. Cab provides clear vision on all sides and the entire unit is de luxe equipped.

4. THIS 200-gal. ice cream body by GIFFEL Body Mfg. Co., is insulated with DRY-ZERO in roof, sides and end. KOLD HOLD cooling units maintain temperatures of 10 below to 40 above. Condensing unit is a KELVINATOR. The 1½-ton chassis is a FORD.

5. BAH, BAH, AUTOCAR, have you any wool? Yes, sir, Yes, sir, 107 bags full. A train-load of scoured wool is stacked in this 26-ft. aluminum stake body. The tractor peeping out from under the wooly covers is model UD, 215-in. wheelbase. Overall length is 33 ft.

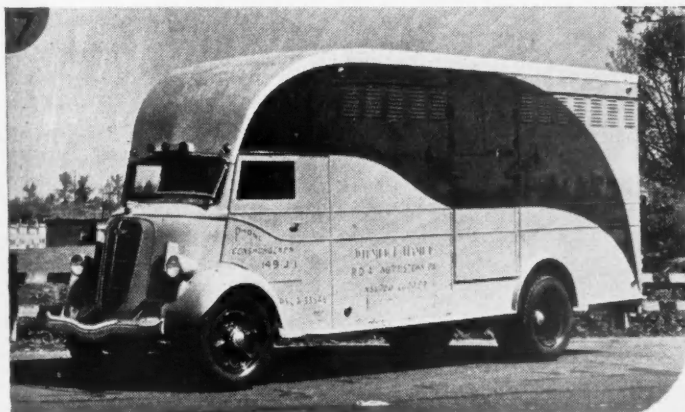
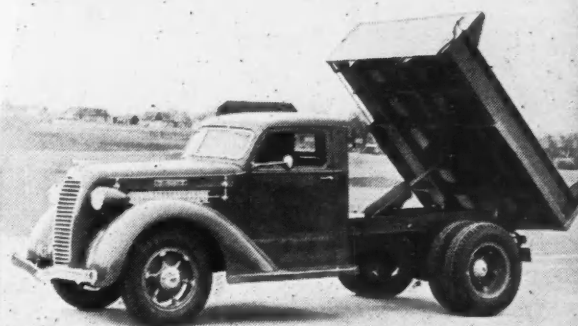
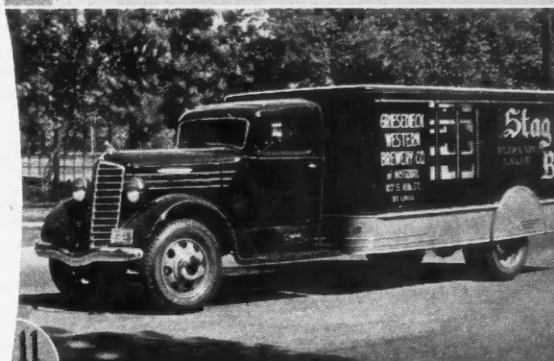
7. HORSES are horses and trucks are trucks and here the two meet in a classy STUDEBAKER cab-forward Model 2M-683 with a 19-ft. horse van body. Capacity: four horses. Body was built by FINNESSEY Body Co. for Wm. L. Hamel, Norristown, Pa.

9. FRUEHAUF built this 1200-cu. ft. moving van and trailer for Davidson of Baltimore. Van's floor is 25 in. above ground. Right side door aids loading. Chromium strips set off the modern lettering. Belt line is raised. Tractor is a CHEVROLET camel-back conversion designed by Davidson and built by MONTPELIER MFG. CO.

10. HEIL rises to the occasion with this 2 cu.yd., Model SL-11, dump body equipped with a Heil-built SL-2 hoist complete with power take-off. Body is 8 ft. long, and 6½ ft. wide. Sides are 12 in. high. Body slides are at side and rear. The tailgate has a sliding door with lever handle and spillway. Chassis is DIAMOND T Model 221 with 139¼-in. wheelbase.

11. LOADED with kegs of Griesedieck stag beer, this snappy MACK Jr. helps to take St. Louis' blues away. The special side-unloading brewer's body has a steel frame to which side panels are welded. Body is 14½ ft. long, 90 in. wide and 52 in. high.

12. HIGHWAY offers this custom built body of ALUMINUM construction mounted on a 77 series semi-trailer chassis. Roof of the body is slated and designed to carry pipes and other long loads which cannot fit inside. Tractor is IHC.



8. AVAILABLE Model WS-305-SW, 4-ton, six-wheeler, GENERAL body and WILSON hair-craft insulation. Powered by WAUKESHA Model 6-110. Body is 18 ft. long and has a steel roof, aluminum panels, aluminum floor insulated with Naturzone. Headlights are retractable. HANSEN Hardware.

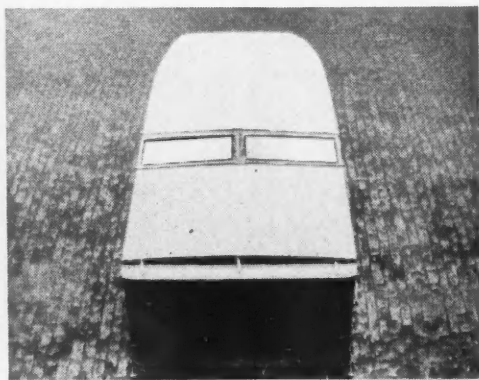


Serving 40

ROWLAND HUSSEY MACY'S proclivity towards merchandising manifested itself at an early age. Scarcely 20, the captain of a New England trading vessel, he gave up the sea and became a store keeper first in Boston, then in Haverhill, later in New York City. He established his store in New York in 1858 with delivery equipment consisting of one pushcart, but he had no idea then that his business would grow into the world's largest single department store with a delivery fleet of 415 units trucking on an average of 50 to 60 thousand packages and covering 15,000 miles daily.

From the period of the pushcart and the one-manpower delivery department, Macy today employs over 600 drivers and helpers to man its fleet which last year covered a total of 3,657,003 miles, burned up 517,566 gal. of gasoline, 8591 gal. of oil, 2,189,518 ampere hours of current and used 533 new or re-treaded tires.

This fleet serves about 40 million customers yearly delivering 1/3 billion lb. of merchandise.



Million Customers by Truck

The Transportation Tale of Our Largest (the Till Tells) Department Store—MACY'S By STANLEY GERSTIN



WHEN it was decided to write-up the Macy truck fleet, the cooperation of a battery of Macymen was enlisted. The fleet superintendent, the general delivery superintendent, the advertising department and even the general manager's office were combed for the facts. Enough material was gathered to write a book on the World's greatest (Macy's claim, supported by figures) department store. But this information was carefully studied and briefed so that the resulting story is easily digestible and interesting reading on the development of the fleet and drivers and experiments in body design. However large, Macy's fleet pattern is applicable to all fleets and should prove an interesting study.

But before we go further into the immensity of the Macy fleet operation, its growth, its set-up, its drivers, experiments in body design and its delivery problems, let's pause a moment and cover briefly the history of the store itself.

The Store

R. H. MACY moved to New York City from Haverhill, Mass., and opened a store at Sixth Avenue and 14th Street in 1858. Five years later he acquired an addition to the original store and then, like Topsy, he just grew, but under his own form of planned business efficiency. The business developed; new lines of merchandise were added; new policies formulated—particularly the cash sales policy.

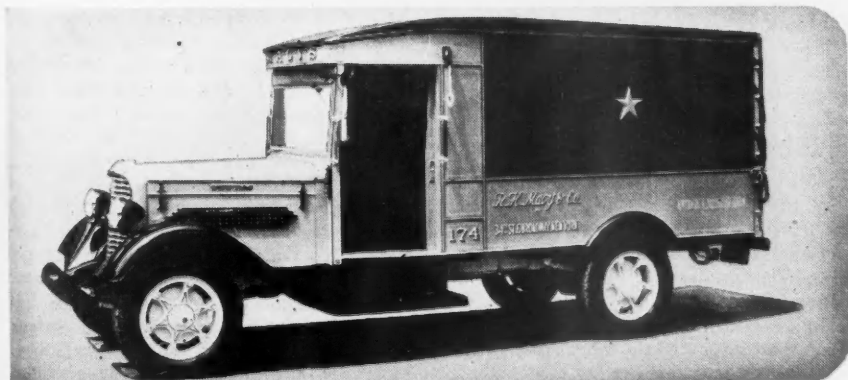
In 1883 the Macy store had rounded out its first quarter of a century of business. Its growth had been so rapid that in 1883 the store employed 600 men and women, which was a considerable increase over the 100 employed in the store in 1870. In 1878 the sales por-

tion of the store was equipped with the new lighting invention of Thomas Edison, the arc lamp. This innovation was soon followed by the installation of pneumatic tubes for carrying the money from the saleswoman at the counter to the head cashier. Shortly after this the store's first telephone was installed. The first elevator had been installed in 1882. Now, Macy has the largest private telephone system in the city, 750 tube stations with over 70 miles of brass tubing, and 58 escalators and 59 elevators for the use of customers. But this is getting ahead of the Straus family.

LAZARUS STRAUS came to this country about the time of the great California gold rush—but the family stayed East as merchants, and eventually opened a chinaware counter in Macy's. Fourteen years later the store passed out of the hands of Macy (at his death in 1877), and his successors sold it to Isidor and Nathan Straus, sons of Lazarus. Thus the crockery counter absorbed the store which had

taken it in. Transfer of interests was on January 1, 1888.

To date Macy has been established 78 years. From a small store at Sixth Avenue and 14th Street, it moved uptown to a site on Broadway and 34th Street and occupies one square block
(TURN TO PAGE 66, PLEASE)

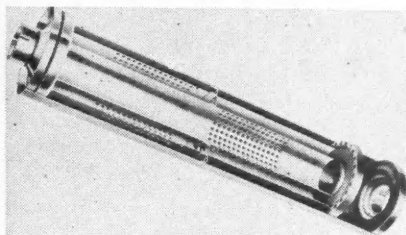


COMMERCIAL CAR JOURNAL
AUGUST, 1936

On the opposite page is Macy's of today occupying one square block at 7th Ave. & 34th Street, N. Y. C. Below it is the new type furniture truck. Bottom—Left to Right are shown the new electric package truck for city delivery (note that loading is through the windshield); the experiment of fitting a section of the roof of package delivery trucks with glass to permit more light inside proved so successful that this feature has become a part of all body design. Left—A typical package delivery truck which Macy finds most practical. The original pushcart used by Macy for deliveries in the 1870's is shown above with James Wood, Macy's first delivery man, beside it

Permite Muffler

THE new Permite muffler consists of three cylindrical tubes. The outer shell is solid. The middle shell has perforation extending from the center of the muffler back towards the intake end. The inner shell has perforations extending towards the exhaust end. The gases must shift through these three tubes before passing into the tail pipe and the operation has the result of making the muffler extremely quiet. The muffler is protected against corrosion with aluminum coating. It is also easy to install. Further improvement in muffler design has been accomplished through the



lengthening of both ends or nipples, and the bushings, which are inserted in them. This longer contact surface provides greater joint strength and a more secure fit. Aluminum Industries, Cincinnati.

Garage Welding Outfit

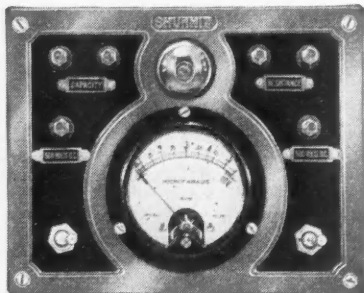
THE Alexander Milburn Co., 1481 West Baltimore St., Baltimore, announces a new garage welding outfit priced at \$59. It is made up of full size, heavy-duty equipment, including a welding torch with five tips, hose with connections, regulators, wrenches, lighter, goggles and construction manual.

Ideal for welding fenders, bodies, heating frames, axles and burning out rivets and bolts.

Condenser Tester

ALL guesswork in testing condensers can be eliminated by the use of the new Shurhit condenser tester manufactured by Shurhit Products, Inc., Waukegan, Ill.

This new laboratory type unit tests for breakdown with not less than 500 volts D. C. It tests for capacity and also for resistance. Plugs into 110-volt A. C. socket. Case size 7 $\frac{1}{8}$ in. x 6 in. x 3 $\frac{1}{8}$ in. Has handy handle to carry or to hang under hood when checking condenser.



New Products

Descriptions of the Latest Items Put on the Truck Market by Equipment and Specialty Manufacturers

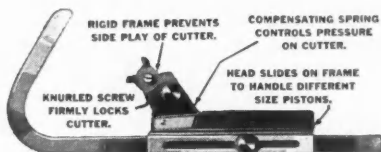
Thor Hamerench

A NEW pneumatic tool, combining the actions of a hammer and a wrench, is being offered by the Independent Pneumatic Tool Co., 600 W. Jackson Blvd., Chicago. This tool, the Thor No. 603 Hamerench, applies and removes all types of nuts in structural steel work, automobile plants, etc. Being of the right-angle type and operating horizontally to the application, this machine permits operation in places absolutely inaccessible to the straight machine, which needs a space considerably greater than its overall length in which to apply or remove nuts.

Ring Groove Cleaner

THE National Machine & Tool Co., Jackson, Mich., announces an improved type of ring groove cleaner. A compensating spring eliminates chatter when the tool is used, and a positive locking screw prevents taking too deep a cut.

The cutter blade, which is replaceable, is



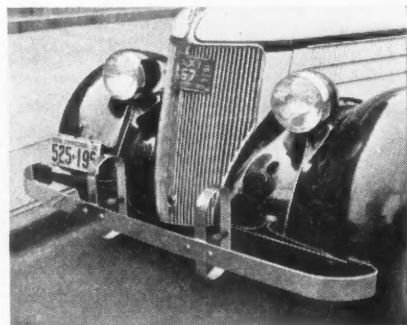
mounted radially to protect the mechanic's hands and knuckles from injury, and on it are four sizes: 3/32 in., 1/8 in., 5/32 in., 3/16 in. The tool works equally well on old-style pistons and on the many new types now being manufactured.

"Hush-Buttons"

A SIMPLE method of silencing annoying clicks and rattles in door joints is claimed for "Hush-Buttons," just introduced by the Fostoria Pressed Steel Corp., Fostoria, Ohio. The product consists of a thick, cushion disc of resilient sponge rubber, coated on one side with a permanent adhesive that grips tightly when moistened with gasoline.

Safety Cushion Bumper

THE new Safety cushion bumper is a radical departure from the conventional bumper design. Instead of functioning merely as a "push" and "pull" bar attached to the frame, the bumper is constructed as follows: Although in appearance it is practically the same as the conventional bumper, both ends of the specially tempered steel front bar are held in place by a slotted casting affixed to the secondary bar. Thus these ends are free



to move outward slightly upon impact. Strategically located between the front and back bar are two recoiling C-springs whose ends are likewise contained in similar slotted castings which are affixed to the front bar. These ends are also free to move upon impact. The function of these four movable spring ends is to dissipate a large percentage of the force of any frontal impact in four directions—left, right, up and down. These bumpers are in production for passenger cars, trucks, buses and trailers. Safety Cushion Bumper and Mfg. Co., Detroit.

Circuit Tester

THE LP electrical circuit tester will spot trouble quickly and accurately. Short circuits or current leaks are indicated by the super-sensitive neon glow light in the center of the instrument. By injecting the full voltage into the faulty part of the system, a spark will flash at the point of weakness. This new device tests condensers, rotor,

on PARADE

breaker points, distributor cap, coil, spark plug wiring, or any part in the ignition, lighting and starting system and generator as well as shorts, opens, grounds, leaks, partial shorts and continuity. Price is \$16.50 The Lantz-Phelps Corp., Dayton, Ohio.

Colloidal Lubricant

"LUCRA-LUB," a new colloidal graphite lubricant of high purity, is announced by the Superior Flake Graphite Co., Chicago. The new lubricant, added to both crankcase oil and fuel, is said to increase gasoline mileage at least 15 per cent, to reduce oil consumption one-third to one-half, and to enable motor oil to be used for 3000 miles or more without changing.

"Lucra-Lub" will be marketed in two



varieties, one for adding to motor oil and the other for adding to gasoline, in pint, quart, gallon, five gallon and larger containers.

Evanwood Brake Tester

A LARGE tire model of the Evanwood safety brake tester to take care of the larger trucks with up to 46-in. overall tire sizes, is now on the market.

The Evanwood provides quick and accurate readings of conditions inside the drum, mechanical as well as hydraulic brakes. Readings are taken directly from the drum and not from the outside of the tires. Retail price—\$44.50 for the No. 1 Balancer, and \$69.50 for the No. 2 or Truck Model Machine, complete with brake jack; Trayer Products, Inc. Exclusive agent is the C & C Sales Corp., General Motors Building, 1775 Broadway, New York City.

COMMERCIAL CAR JOURNAL
August, 1936

Auto-Lite Spark Plug

THE Electric Auto-Lite Co., Toledo, largest independent producer of ignition, starting and lighting systems for the automotive industry, has begun the manufacture of spark plugs. The new plug is said to mark a revolutionary engineering advancement in spark plug design.

Royce G. Martin, president of Auto-Lite, points out that the inauguration of actual manufacturing operations is not only a logical result of the company's 25 years of research, development and manufacture of every other ignition system unit, of which the spark plug is an integral part, but climaxes several years of special spark plug research, originally begun with the definite idea of some day creating a plug entirely new in design and efficiency. "Ignition engineered by ignition engineers" is the slogan backing the new plugs.

New materials and new alloys have been developed for the plug by Auto-Lite engineers. Konium is the name of the new electrode being used. Ziramix is the new insulator material. Spark gaps are set with perfect accuracy by photo-electric eye.

It is disclosed by the company's engineers that the new plugs have been undergoing tests of actual operation in various makes of passenger cars and trucks for the last two years, with exceptional results.

A world-wide merchandising plan has been completed and the plugs will soon be available through Auto-Lite's thousands of official service stations and other retail outlets.



Speedy Tube Patch

DILLECTRIC tube repair patches and valve stem replacements offer fleet men an advanced tube repair method. The new individual Dillectric speed patch unit is a ready-cut patch and electric vulcanizer in one with automatic heat and time control. Perfectly heat vulcanized feather-edge repairs, according to the manufacturer, can be conveniently made in just a few minutes. Dill Mfg. Co., Cleveland.

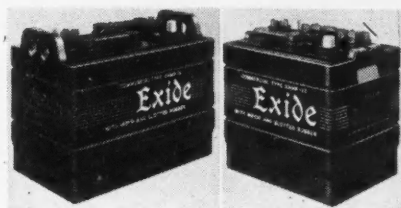
Exide Commercial Batteries

FOUR new commercial types of Exide batteries for trucks are announced by the

Electric Storage Battery Co., Philadelphia. They are designed for service on light, high-speed trucks. Their design is based on the results of months of engineering study in the field.

Each battery is equipped with Mipor, the heat-resisting, latex separator and the slotted-rubber plate protector which helps hold the active material in the grids and lengthens the life of the plates. This combination of features, according to the manufacturers, will give longer life and high starting capacity.

Other features are extra-high thick plates $\frac{5}{8}$ in. higher than standard, and positive plates of the same thickness as negatives. Electrolyte space is provided



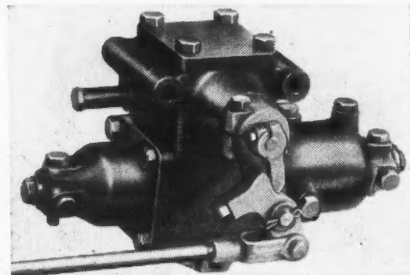
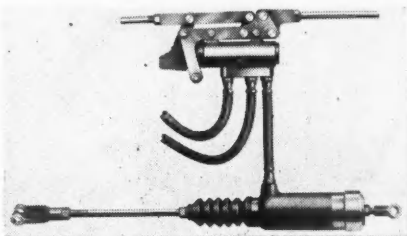
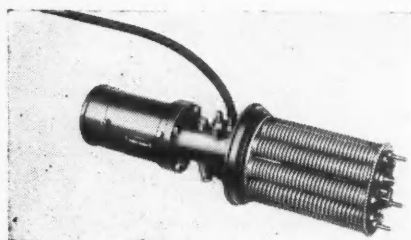
which reduces refilling frequency. A quarter-turn vent plug reduces time required in refilling the batteries. Plates are bevel-cornered with feet; intercell connectors are extra heavy. Post seals are corrosion-proof. Batteries are assembled in heavy-duty, hard rubber containers with handles. Specifications of types XHMR-13 and 15 are: weight—46 and 52 lb. respectively; capacities at 20 hr. rate are 101 a.h. and 118 a.h. respectively, with 300 amp. at 0° F. for 2.9 min. and 4.0 min. respectively. Specifications for types XHMR-17 and 19 are: weight—59 and 67 lb. respectively; capacities—20 hr. rate—135 a.h. and 152 a.h. respectively, with 300 amp. at 0° F. for 5.0 min. and 6.1 min. each.

Voltage Tester

BURTON-ROGERS CO., Boston, Mass., announces its Model GVR-2 Hoyt generator and voltage tester. It is claimed that accurate testing and adjusting operations are possible with this tester when adjusting generator charging rate, voltage regulators, testing batteries and starters. It contains a moving coil voltmeter and ammeter, with a variable resistance for determining cut-out relay and voltage regulator operation.



[Other Products Page 86]



(L. to R.)—Accumulator; brake unit attached to Modulator; Electroflo operating unit

"Electroflo" System for Brake Actuation

THE Electroflo is an electric-hydraulic power system for brake actuation made by the Rockwell Products Co., Hartford, Conn. In the system are two major parts, the accumulator and the operating unit.

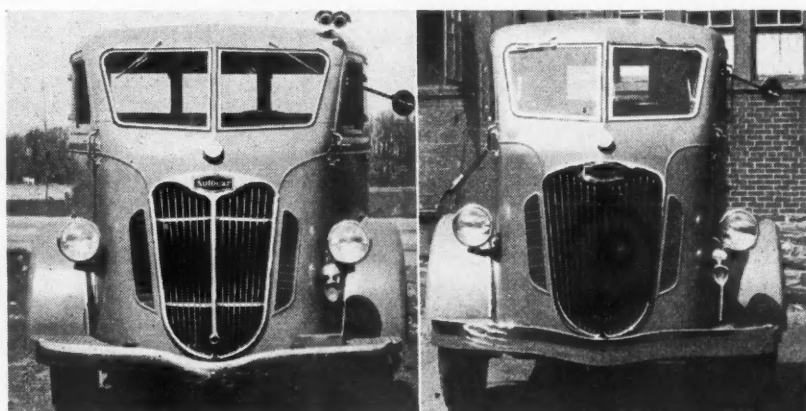
The accumulator contains an electrically driven pump which keeps a quantity of special fluid under a constant pressure of from 450 to 500 lb. per sq. in. An automatic feature keeps the pressure in this range.

The operating unit is made up of a valve and an operating unit. The valve is mechanically connected to the brake pedal and hydraulically connected to the high pressure outlet of the accumulator and the inlet of the operating unit. This valve accurately proportions the pressure in the operating unit according to the pressure exerted on the foot pedal. This proportion is maintained at all times whether the brake is being applied or released. This feature gives the driver a degree of control through brake pedal "feel."

The installation is extremely simple. The accumulator can be placed in any convenient position requiring only wiring to the generator and battery and tubing to the valve. The operating unit

can be placed anywhere that it can pull or push on the brake linkage and is connected to the valve by a single tube. The valve is connected to the pedal by any convenient linkage. All units are small and none of them require engineering into the vehicle.

For trailer installation a single tube from the tractor to trailer is required. A patented automatic coupler makes it possible to couple and lock the connection with a single motion.



The two types of streamlined cabs now offered by Autocar for engine-under-the-seat chassis are available in a standard (above—right) and in a sleeper model (above—left). Principal dimensions are: overall outside length, (standard) 73 in., (sleeper) 92 in.; overall width outside at rear, (standard) 64 in., (sleeper) 79 in.; overall height, top of frame rail, (standard) 63 in., (sleeper) 63 1/4 in.; sleeper bed size, 21 x 73 1/4 in.

New Truck Registrations by Makes by Months

	Autocar	Brockway	Chevrolet	Diamond T	Dodge	Federal	Ford	G. M. C.	International	Mack	Reo	Sterling	Stewart	Studebaker	White-Indiana	Miscellaneous	Total
January.....1936	75	94	15,124	495	6,207	223	14,606	428	4,743	90	339	8	85	143	493	607	43,760
January.....1935	71	86	9,867	550	5,141	152	13,260	858	3,513	114	380	10	42	127	308	280	34,759
February.....1936	57	88	14,978	510	5,556	170	12,226	758	4,365	107	217	4	62	134	408	661	40,301
February.....1935	41	54	11,701	499	3,271	113	14,330	570	3,174	63	292	10	34	107	217	321	34,797
March.....1936	88	127	19,511	634	6,753	205	16,168	1,551	5,395	184	264	17	73	221	477	762	52,430
March.....1935	56	67	13,744	534	4,284	132	16,805	850	3,673	100	389	14	60	135	258	410	41,511
April.....1936	121	179	23,323	784	8,818	271	18,497	2,733	7,308	289	379	21	112	327	700	1,099	64,961
April.....1935	79	109	15,024	568	5,708	177	17,943	870	4,554	159	449	31	62	189	309	554	46,785
May.....1936	109	168	21,443	754	8,507	275	17,971	3,045	6,704	440	399	16	116	358	719	1,159	62,183
May.....1935	78	97	16,284	570	5,381	193	17,591	883	4,807	189	616	5	60	229	294	691	47,968
Five Months.....1936	450	656	94,379	3,177	35,841	1,144	79,468	8,515	28,515	1,110	1,598	66	448	1,183	2,797	4,288	263,635
Five Months.....1935	325	413	66,620	2,721	23,785	767	79,929	4,031	19,721	625	2,126	70	258	787	1,386	2,256	205,820
% Change, Five Months.....	+39	+59	+42	+17	+51	+49	-1	+112	+45	+78	-25	-6	+74	+50	+102	+90	+28

COMMERCIAL TYPE *Batteries*

★ EXTRA ELECTROLYTE SPACE . . . To lessen watering frequency.

★ HEAVY DUTY GENUINE HARD RUBBER CONTAINER . . . Four rib element supports.

★ HEAVY INTER-CELL CONNECTORS.

★ CORROSION-PROOF POST SEALS.

★ BEVEL-CORNERED PLATES . . . WITH FEET.

Write for the name of the nearest Exide Wholesaler who can give you complete details on the new line of Exide Commercial Type Batteries.

THE ELECTRIC STORAGE BATTERY CO., Philadelphia
The World's Largest Manufacturers of Storage Batteries for Every Purpose
Exide Batteries of Canada, Limited, Toronto

EXIDE

Commercial Type Batteries Equal or Exceed the S. A. E. and U. S. Government Standards Both for Capacity and Life.



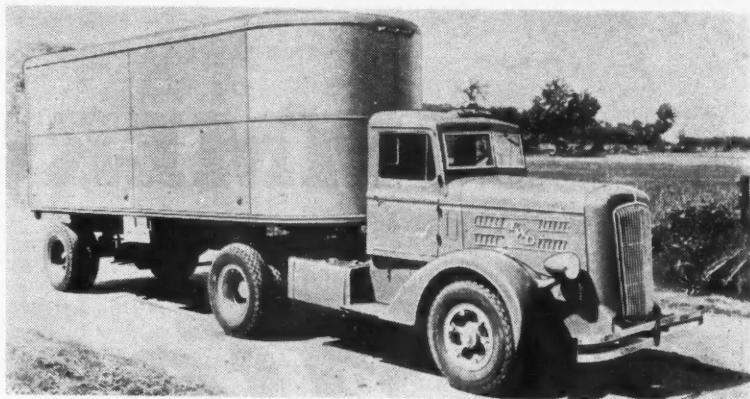
Specifications

TYPE	XHMR-17	XHMR-19
Length	11½"	12½"
Width	7⅞"	7⅞"
Height	9⅝"	9⅝"
Weight	59 lbs.	67 lbs.
Capacities		
20 Hr. Rate	135 A. H.	152 A. H.
300 Amps.		
at 0° F. for	5.0 Min.	6.1 Min.

A NEW 40,000 lb. gross capacity tractor truck, Model T-40, 130-in. wheel-base, designed to meet the requirements for a compact high-speed unit for heavy-duty hauling is announced by the Four Wheel Drive Auto Co., Clintonville, Wis.

More equal weight distribution is made by setting the front axle back 53 in. from the front bumper. The weight distribution of the tractor is 40 per cent on the front axle and 60 per cent on the rear. The manufacturer states that the tractor and semi-trailer are designed to carry 40,000 lb. gross distributed 10,000 lb. on the front axle of the tractor, 15,000 lb. on the rear axle of the tractor and 15,000 lb. on the axle of the semi.

The 125-hp. motor has a 462-cu.-in. displacement and develops 324 lb.-ft. of torque. The transmission is of the 5-speed sliding gear type with overdrive and reduction of 7.3 to 1 in direct. A road speed of 52 m.p.h. is claimed. Other features are: 14-in. single plate clutch, transfer case with 5-in. silent chain, center differential and propeller shafts with needle bearing type universal joints, front and rear axles of the



FWD tractor designed to meet axle weight and length restrictions

T-40 FWD Tractor for Speedy Hauling Totes 40,000 lb. Gross

full floating type, overload springs front and rear and 9.75-20 tires, singles front, duals rear. Frame height is 36 in.

The deluxe cab is equipped with shatterproof glass and draftless venti-

lation. The instrument panel assembly is complete including a tachometer. Appearance is emphasized through eye-pleasing lines of the skirted teardrop fenders, radiator grille, windshield.

Shop Hints

(CONTINUED FROM PAGE 23)

Correcting King Pin Fit

ONE series of light trucks in our fleet broke king pins at an alarming rate. After looking the job over thoroughly it was decided that the trouble was caused by the king pin being somewhat loose in the axle even when new. Searching through a jobber's stock a king pin 1/64 in. larger in diameter was found but the pin was much too long. After grinding through the case hardening the bolts were hacksawed to proper length and then pressed into the axle I beam with an arbor press. This oversize bolt stopped the breakage.

Handy Tire Spreader

AN EXCELLENT portable tire spreader can be made with about 3 ft. of 1/4-in. by 1 1/4-in. strap iron and two rope knobs. One rope knob should be placed at one end of the strap. The second rope knob should be mounted at a point along the strap that is determined by the amount that the tire is to be spread. This distance will of course depend upon the sizes of the tires which the tool is to be used on, but one tool will take care of several sizes. An inch or two beyond the second rope knob the strap iron should be bent so that it becomes L shaped, the angle

of the bend being somewhat less than 90 deg. The handle or the amount of strap beyond the bend should be just long enough so that the operator can spread the tire without effort.

Preventing Fuel Waste

TRUCKS that are gassed and then immediately start out in traffic work with quite a bit of backing up lose about 1/2 gal. of fuel through spillage. To remedy this condition a thin metal collar was inserted in the filler neck and brazed at the top. This collar extended several inches down the filler neck and about half-way down two 1/16-in. holes were drilled in it on opposite sides. This collar, since it prevents the escape of air as fast as gas is put into the tank when it is being filled causes the gas to bubble up when the tank is just about one gallon short of being full. When the gas bubbles up one to two ounces is lost but this loss prevents the loss of about 1/2 gal. at each filling.

By Benjamin Von Pentz

S and E Motor Hire Corp., N. Y. C.

Stopping Crankcase Oil Leaks

IN trying to eliminate oil leaks at the rear end of the crankshaft into the flywheel housing I tried the method recommended by the factory but found that this method did not stop the leak

permanently. After failure with the recommended procedure I worked out an idea of my own.

Where I find the rear main bearing in good condition with no excessive end-play the bell housing is removed and a series of 3/16-in. holes are drilled at an angle up into the oil recess groove. The exact location of the holes is shown in the cut of Fig. 2. These holes will allow the oil and sludge that accumulates aided by the centrifugal action of the excess oil passing into this groove, a direct passage back to the crankcase.

Drilling holes without removing the bell housing was tried but was discarded because with the bell housing removed a greater number of holes could be drilled and the groove cleaned thoroughly. The extra labor is well worth the results accomplished. Now that the holes have been drilled and the groove cleaned to take care of the oil that flows this direction we turn to the prevention of sludge formation.

The next step is to equip the engine with a good oil filter and change the cartridge as often as conditions warrant. This will prevent the accumulation of sludge which forms as a result of the water which is produced by combustion coming in contact with the oil. Another step in the elimination of sludge is the use of a thermostat both summer and winter which permits circulation only above 160 deg.

I Looked at Oil Costs Wrong-End-To



I LOOKED at oil costs from the standpoint of *First Cost*—and bought cheap oil for my fleet.

"The plan was a pip—till maintenance costs started to roll in. When they did, I figured I must be holding the sack.

"Whew! Did I do some tall investigating at once!

"I found that my motors weren't getting sufficient lubrication because of sludge and gum. I discovered carbon deposits large enough to start a charcoal factory. And I found that, besides doing the world's worst job of lubrication, the oil was going thin too fast and that I was using lots more than I should.

"Now I'm using Gulflube. Here's why I know it's plain sense to pay the few cents more:

"Gulflube is the only premium quality oil in this man's land that sells at a regular price.

"Refined by an entirely different

method—the Multi-sol Process—Gulflube is refined clean of 'black-sheep' compounds. The carbon, sludge and wax-forming elements that cause expensive repairs are conspicuous by their absence.

"Gulflube's film strength is high. So is its viscosity index. It thins out less under heat, yet flows readily in winter weather.

"In mileage tests, Gulflube ran rings around every regular priced

oil on the market. Recently, this mileage has been lifted up another 20 or 25%.

"Something pretty swell has got to come along before yours truly will use anything but Gulflube in his buses."

To all fleet owners Gulf says this: *We have an interesting money-saving story for you, too. Send the coupon below—today. It will bring you a helpful chat with a Gulf Salesman.*

GULFLUBE MOTOR OIL



CCT-86

GULF, 3800 Gulf Building
Pittsburgh, Pa.

Gentlemen:

I should like to get the complete money-saving story on Gulflube.

Name _____

Address _____

City _____ State _____

News

SUMMARY of the Past Month

June Sales Up 14% Output Jumps 23%

55,000 Units Mark New High for June; Output Highest Since '29

New truck registrations for June are estimated at 55,000 units, an all-time high for that month on the records kept since 1926. This is an increase of 6757 units or 14 per cent over the 48,243 units registered in June, 1935. It represents, however, a drop in registrations of 7183 from May when 62,183 units were sold. Sales for the first six months of the year, with June estimated, total 318,635 units, exceeding the 254,603 units sold last year by 64,572 units, or 25.7 per cent.

Production for June totals 81,120 units, an increase of 15,335 units over the 65,785 units produced in June last year. This is an increase of 23.3 per cent. This is also the best production month attained since 1929 when 94,940 units were produced. June production exceeded May production by 2445 units. Six months' production totals 464,098 units for an increase of 18.1 per cent over the 392,700 units produced during the same period in 1935.

Waukesha Elects Two Directors

Benjamin C. Bugbee of Milwaukee and Dr. M. A. Hadcock of Waukesha were elected directors of the Waukesha Motor Co. to fill the vacancies left by the deaths of H. L. Horning and A. S. Cronk.

Calmes Joins Truck Equipment Co.

Wm. B. Calmes, formerly with U. S. Tire Co., has been appointed to a district managership of the Truck Equipment Co. He will work out of the Philadelphia zone headquarters.

\$425,000 Contract to FWD

The Four Wheel Drive Auto Company of Clintonville, Wis., has been awarded a \$425,000 contract for 86 four wheel drive trucks by the U. S. Department of Agriculture, Forest Service.

Trailer Company Expands

Five and one-half acres of land adjoining the Trailer Company of America plant on Robertson Ave., Cincinnati, have recently been secured for expansion of the production facilities of the company.

Nat E. Weiner who has been promoted as Eastern Manager of the Service Recorder Co., with headquarters in the Fisk Bldg., New York City. His territory includes the Metropolitan area and New England States.



RFC to Make Truck Loans

The Reconstruction Finance Corporation is preparing to lend money to motor carriers, Jesse H. Jones, chairman, has announced. He declared the Corporation would consider application for loans from truck and bus lines which can be secured by trust certificates.

ICC Accounting Rules Effective Jan. 1

The "reasonable requirements" with respect to uniform system of accounts which the ICC is empowered to prescribe for motor carriers under its jurisdiction are expected to be issued about October 1, to take effect January 1, 1937. These requirements will be of three classes. One for operators who gross under \$50,000 yearly; another for \$50,000 to \$250,000 and a third for those whose revenue tops \$250,000.



Joseph Husson, formerly assistant director of the automotive bureau of the Borden Co., has joined the Kulp Transportation Lines, Inc., Buffalo, as general manager.

Truck-Rail Service Started

Inaugurating its coordinated rail-truck service between Chicago and St. Paul-Minneapolis on July 7, the Chicago Great Western railroad operated a special train of 25 flat cars carrying 50 truck trailers. The railroad receives \$42.50 for carrying a loaded trailer or truck and \$21.25 for carrying them empty.

[Additional News Page 51]

ICC Issues Safety Proposals

The proposed safety regulations for for-hire operators has been released by the motor carrier bureau for criticism from parties who helped develop them. The proposed rules fall under four headings:

1. Qualifications of drivers.
2. Regulations regarding driving of vehicles.
3. Parts and accessories necessary to safe driving.
4. Accident reporting.

It is expected that before the regulations are made effective, a public hearing will be held.

Central States Have Tariff Bureau

Establishment of a trucking bureau through which rates of all truckmen in the central states will be published has been effected. The new organization will be known as the Central States Motor Freight Bureau with W. L. Meyers as publishing agent with offices in Chicago.

New England Truckers Merge

Three New England trucking companies have proposed a merger to form a \$1,000,000 corporation. They are: Adley Express, New Haven, Conn.; John J. McCarthy Co., Taunton, Mass.; Bay State Carloading Co., Mass. An application for the right to combine has been filed with the ICC.

U. S. Rubber Offers Accessories

A new line of automotive accessories has been announced by United States Rubber Products, Inc. An all-season hydraulic brake fluid with an unusually wide operating range, and a white rubber tire coating are expected to be the leaders. In addition, the new products include battery cables, radiator hose and a full line of automotive paints and chemicals.

Dodge Offers Analyzer to Dealers

Dodge division of Chrysler Corp. announces its dealers are being offered a new motor-analyzer equipment recently developed. The analyzer consists of a number of independent testing units and is designed to cover a wide range of electrical and mechanical tests of engine elements. This equipment was developed by Joseph Weidenhoff, Inc., to standards established by Dodge.

Four Trucking Areas Favored

Determination of four areas in which interstate trucking operations would be partially exempt from motor carrier provisions has been reported by the ICC examiners. The reports will become the order of the commission July 29, unless countermanded or unless exceptions are filed. These areas include St. Louis, Los Angeles, Chicago and New York.

Central Truck Terminal

The Central Union Truck Terminal, Inc., Indianapolis, has leased property in that city large enough to house 20 large truck lines. Facilities include space for handling 50 trucks off the streets, a railroad siding and public switch.

HIGH SHOULDERS* mean **Low Tire Costs**

—They're just what you need

MR. FLEET OPERATOR

This "high shoulder" tire construction is something you get only in Goodyear's new Improved High Profile Truck Tires.

But get these tires on your trucks—your trucks on the job—and you'll get the most astounding truck tire performance you have ever known.

"High shoulders" mean a bigger, sturdier, tougher, cooler running tire. They mean better cushioning—extra strength for swaying loads and overloads—protection against bruises and cuts—against

blowouts—against carcass failure of any kind. They mean extra grip, pull and non-skid.

To you—Goodyear High Profile Truck Tires mean thousands of additional miles of tire life *free*—more miles per tire—more tire per dollar.

They're just what you need for dependable, economical service—to cut your tire costs to a minimum. Phone the Goodyear truck tire dealer nearest you. He'll save you money.

THE GOODYEAR TIRE & RUBBER COMPANY, INC., AKRON, O.

*** HIGH SHOULDERS**

"High shoulders" refer to the 18% greater sidewall area between rim flange and edge of tread design. This increased flexing zone distributes road shocks and destructive heat over a wider area—prevents it from localizing—dissipates heat more readily. Thus it keeps tire cooler—protects against carcass failure—lengthens tire life by thousands of miles.

MORE TONS ARE HAULED ON GOODYEAR TRUCK TIRES THAN ON ANY OTHER KIND



The illustration shows a large Goodyear truck with prominent 'high shoulder' tires. A driver is visible in the cab. The truck is shown from a side profile, moving towards the right. The background is dark, emphasizing the truck and its tires.

GOOD YEAR
TRUCK TIRES money savers

Refinements In Diesels Drop Maintenance Costs

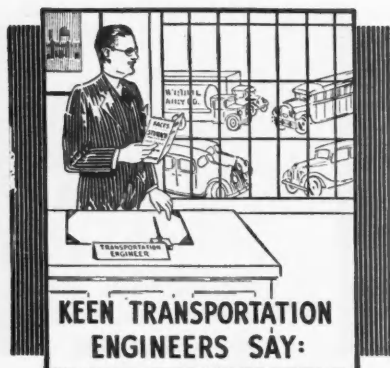
(CONTINUED FROM PAGE 13)

load factor was computed from a record of payload hauled, as reflected by the freight bill records. This four-month record of the gasoline trucks for 1934 is set up as a measuring stick with which to measure the performance of the diesel trucks.

The same study was made for the 10 diesel trucks for the first four months of 1934, 1935 and 1936.

During the months of May, June,

Miles Run Per Year	10-ton—\$3,000			15-ton—\$5,200			20-ton—\$6,000		
	Miles Life	Years Life	Depreciation Per Year	Miles Life	Years Life	Depreciation Per Year	Miles Life	Years Life	Depreciation Per Year
5,000	40,000	8.00	\$ 375.00	45,000	9.00	\$ 578.00	50,000	10.00	\$ 690.00
10,000	53,700	5.37	559.00	63,700	6.37	816.00	73,700	7.37	936.00
15,000	67,400	4.50	666.00	82,400	5.50	945.00	97,400	6.50	1,061.00
20,000	81,100	4.06	739.00	101,100	5.06	1,028.00	121,100	6.06	1,139.00
25,000	94,800	3.80	790.00	119,800	4.80	1,084.00	144,800	5.80	1,190.00
30,000	108,500	3.62	829.00	138,500	4.62	1,125.00	168,500	5.62	1,229.00
35,000	122,200	3.49	860.00	157,200	4.49	1,160.00	192,200	5.49	1,245.00
40,000	135,900	3.40	882.00	175,900	4.40	1,181.00	215,900	5.40	1,279.00
45,000	149,600	3.32	904.00	194,600	4.32	1,205.00	239,600	5.32	1,299.00
50,000	163,300	3.26	920.00	213,300	4.26	1,220.00	263,300	5.26	1,310.00
55,000	177,000	3.22	931.00	232,000	4.22	1,230.00	287,000	5.22	1,320.00
60,000	190,700	3.18	944.00	250,700	4.18	1,245.00	310,700	5.18	1,331.00
65,000	204,400	3.13	959.00	269,400	4.13	1,260.00	334,400	5.13	1,346.00
70,000	218,100	3.10	969.00	288,100	4.10	1,270.00	358,100	5.10	1,355.00
75,000	231,800	3.08	974.00	306,800	4.08	1,275.00	381,800	5.08	1,360.00
80,000	245,500	3.06	980.00	325,500	4.06	1,280.00	405,500	5.06	1,362.00
85,000	259,200	3.04	986.00	344,200	4.04	1,290.00	429,200	5.04	1,370.00
90,000	272,900	3.02	994.00	362,900	4.02	1,295.00	452,900	5.02	1,375.00
95,000	286,600	3.01	995.00	381,600	4.01	1,298.00	476,600	5.01	1,378.00
100,000	300,000	3.00	1,000.00	400,000	4.00	1,300.00	500,000	5.00	1,380.00



KEEN TRANSPORTATION
ENGINEERS SAY:

The RIGHT "EP" Gear Lubricant

MUST BE USED

FOR THE PROPER LUBRICATION OF Two-Speed Truck Axles

INSIST UPON—AND GET—GENUINE

"STURACO" EXTREME PRESSURE("E.P.")
GEAR AND CHASSIS
LUBRICANTS

"STURACO" is approved by the largest builders of "special" axles. Properly installed and serviced, its use will save you money.

"STURACO"—with five years of actual road service behind it—is today considered by leading impartial lubrication authorities as a genuine engineering achievement.

Why delay further in ordering trial drum?
Act today.

"STURACO" E.P. LUBRICANTS
ARE THE ORIGINAL DEVELOPMENT OF
D.A. STUART & CO.
ESTABLISHED 1865
GENERAL OFFICES, 2727-2753 SO. TROY ST. CHICAGO, U.S.A.
BRANCHES IN PRINCIPAL CITIES



THE BIG THREE
OF MODERN LUBRICATION

TABLE No. 2

Showing Estimated Useful Life, in Miles and Years, of Various Sizes of Truck Units, for Various Truck Miles Per Year

Also Depreciation Per Year Based Upon the Net Investment Shown After Deduction of Tires and Salvage

July and August of 1935, the diesel motors were equipped with the new type of pistons, connecting rods, valve rocker arms, guides, locks, keepers and injectors. Shortly thereafter the garage superintendent reported decreased maintenance, decreased fuel consumption and increased power. The data for the first four months of 1936 indicate a pronounced decrease in maintenance costs and for the first time cost of repair parts and repair labor has been less than for the gasoline-motored equipment.

THE basic data and cost units computed therefrom are shown in Table No. 1. It may be seen from an analysis of these data, comparing present diesel operation with gasoline operation that:

1. A diesel motored truck runs slightly over twice as far on a gallon of fuel as does a gasoline-motored truck.

2. The cost of fuel per mile for a gasoline-motored truck, is slightly over six times greater than for a similar diesel motored truck.

3. The cost of maintenance of diesel equipment has been decreased, because of improved design, to a unit cost per mile slightly less than the cost of maintenance of gasoline-motored equipment.

4. Improved design of diesel equipment has resulted in the same number of miles per gallon of lubricating oil, as experienced for gasoline-motored equipment.

5. If cost of diesel fuel increased 317 per cent to the same cost as gasoline (TURN TO PAGE 42, PLEASE)



WARLIKE MANEUVERS OF ARMY TRUCKS PROVE VALUE OF NEW TIRE INVENTION

Thundering across open country, heavy army trucks and armored cars stop for nothing. They crash through underbrush, speed over highways, hurdle ditches if necessary . . . Smack! A front tire takes a terrific impact as the car hits a curb-high bump. There's a screech as the driver yanks the wheel around a sharp curve. And the tires are twisted, dragged, tortured. Traveling over fields or highways, there's always the bruising, battering punishment of heavy loads on tire sidewalls. Every day is war for tires!

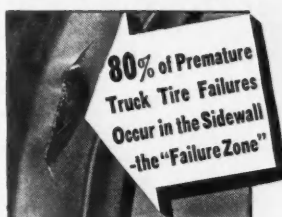
You'll find Goodrich Triple Protected Silvertowns on these big land battleships. You'll find the same tires on hundreds of the world's toughest trucking jobs. Because Silvertowns are *Triple Protected*.

Protects Against Blow-Outs
Every Goodrich Truck Tire has a new invention built into the sidewall—a 3-way check against blow-outs and breaks. This protection actually checks 80% of premature failures! No wonder operators everywhere choose Silvertowns for their toughest hauls—save money on any kind of haul.



Whether you carry one ton or twenty to a load, you can cut down on failures and delays, jump your mileage with

Triple Protected Silvertowns. Don't spend another penny for tires until you see the local Goodrich dealer.



ONLY GOODRICH OFFERS THIS TRIPLE PROTECTION

- 1** PLYFLEX—distributes stresses throughout the tire—prevents ply separation—checks local weakness.
- 2** PLY-LOCK—protects the tire from breaks caused by short

plies tearing loose above the bead.

- 3** 100% FULL-FLOATING CORD—eliminates cross cords from all plies—reduces heat in the tire 12%.

© 1936, The B. F. Goodrich Co., Akron, Ohio.

Goodrich *Triple Protected* Silvertowns

SPECIFY THESE NEW SILVERTOWN TIRES FOR TRUCKS AND BUSES

COMMERCIAL CAR JOURNAL
AUGUST, 1936

(CONTINUED FROM PAGE 40)

there would still be a saving of 50 per cent of fuel cost in the diesel operation.

6. Cost of diesel fuel would have to advance 643 per cent before the fuel cost would be equalized between the two types of equipment.

7. The cost of diesel fuel would have to increase 497 per cent to equalize the cost of operation of the two types of equipment.

THE management of Pacific Freight Lines is thoroughly convinced that should diesel fuel prices advance to a

point where the economic advantages of the diesel motor disappears, which is unlikely, the operating advantages are of such value that the use of diesel motors would be continued on all line hauls. The added power, the ability to move heavier loads at higher speeds over grades, the advantage of shorter time schedules between consuming centers, where competition between truck and rail is very keen, are of such value to the successful operation of the company that diesel engines cannot be abandoned.

At the present time the diesel fleet is operating approximately 4,129,557

miles per year, at a net saving over gasoline operation of 3 cents per truck mile, or a total net saving for the year of \$123,886.71. In a field of free competition where competitive conditions have been most severe and rates have been extremely depressed, and the entire transportation world experiencing a period of chaos, this saving has represented the difference between profit and loss.

The diesel fuel used in the trucks is typical of Los Angeles Basin crude production, and has the following general characteristics:

A.P.I. gravity at 60° F. 30-32

Viscosity, Saybolt Universal, at 100° F. 40-43

Distillation range of 420-760

Cetane number, 50-55

Diesel index number 40-48

Conradson carbon residue, per cent 0.05-0.10

Sulphur, per cent, 0.5-0.7

The gasoline used is the typical second-structure, West Coast gasoline, of approximately 70 octane number.

The oil companies on the Pacific Coast are now marketing a cleaner diesel fuel than formerly. When the Pacific Freight Lines initiated diesel operation, the fuel obtainable contained such material as tank scale, dust, asphaltic particles and other foreign matter, which clogged the filters and caused damage to the finely-fitted parts such as the fuel pump and injection nozzles. The higher viscosity of the diesel fuel makes clarification somewhat more difficult but the problem is being successfully overcome.

AN objection may be advanced that a study of 10 trucks for four months may not be conclusive. This objection is rebutted, at least in part, by an audit which was made of 25 diesel trucks, which had been equipped with the new parts mentioned above. The new parts were installed in 1935. During the first six months of 1936 these 25 trucks traveled 750,283 miles, and the cost of repair parts and repair labor amounted to \$12,454.69 or a cost per mile of \$0.01660.

In comparison, the cost for four months, for 10 trucks shown in Table 1, is \$0.01672 per mile, a difference of \$0.00012, amounting to only \$120.00 for one million miles of operation. This would indicate that the study of the four-month period is just as accurate as one conducted for a longer period, and that the study of the 10 trucks produced practically the same result as a study of the larger group of 25 trucks.

An audit of the cost of the gasoline trucks for the first four months of 1936 shows the total cost per mile to be (TURN TO PAGE 44, PLEASE)

COMMERCIAL CAR JOURNAL
AUGUST, 1936

FOOD IN TRANSIT

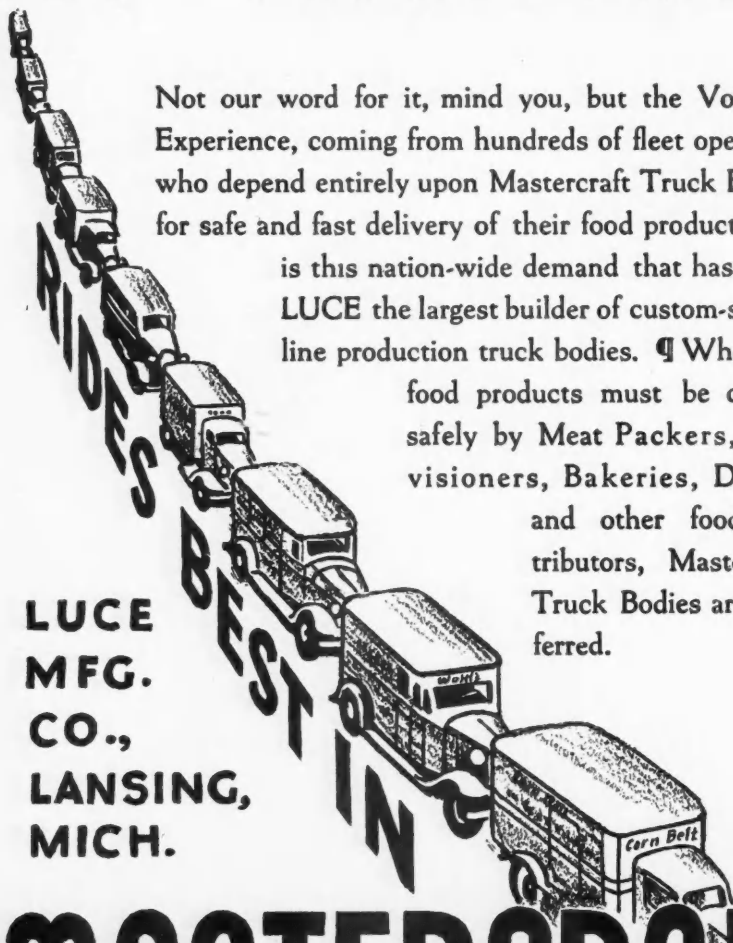
Not our word for it, mind you, but the Voice of Experience, coming from hundreds of fleet operators who depend entirely upon Mastercraft Truck Bodies for safe and fast delivery of their food products. It

is this nation-wide demand that has made LUCE the largest builder of custom-styled, line production truck bodies. ¶ Wherever

food products must be carried safely by Meat Packers, Provisioners, Bakeries, Dairies, and other food distributors, Mastercraft Truck Bodies are preferred.

LUCE
MFG.
CO.,
LANSING,
MICH.

MASTERCRAFT TRUCK BODIES





**THERE IT IS IN BLACK AND WHITE...
WE'VE LICKED HIGH COST-PER-MILE**

Proof of reduced cost-per-mile can be found in the case history charts of almost any Standard-serviced truck or bus fleet. There, in black and white, is a record of lowered operating costs and better service from each motor unit.

SHOP foremen keep records of their fleets . . . it's their business to know when costs run high . . . their business to beat them down. Almost any fleet man who has used Standard Oil (Indiana) Service will tell you the same story of savings.

What is this Standard Service? Simply this:

On request, a Standard Oil (Indiana) engineer makes a free combustion analysis of a fleet. With accurate instruments he checks the 16 vital factors in every engine that control operating smoothness and gasoline economy. From his analysis he recommends the adjustments that will step up gasoline saving and reduce power loss.

When these adjustments are made, cost-per-mile goes down. Hundreds of mid-west fleet owners know this to be true. Make use of our free analysis offer for your own fleet. Call the Standard Oil (Indiana) engineer and let him start your fleet toward a reduced cost-per-mile operating basis.

STANDARD OIL COMPANY (INDIANA)
910 SOUTH MICHIGAN AVENUE • CHICAGO, ILL.



STANDARD OIL PRODUCTS; ISO-VIS "D" • Standard Transmission Oil (Summer and Winter Grades) • Standard Heavy Duty Gear Grease • Standard Wheel Bearing Grease (Medium and Heavy) • Standard Fibre Grease (for Universal) • Standard Pressure Gun Grease (Medium and Heavy) • Standard Water Pump Grease.

Copr. 1936, Standard Oil Co.

STANDARD OIL SERVICE

(CONTINUED FROM PAGE 42)

\$0.09353, as compared to a cost of \$0.09054 for the first four months of 1934—an increase of \$0.00299 per mile. Comparing this cost of gasoline equipment for 1936 to the diesel equipment for 1936, the net diesel saving is \$0.03344 per mile or \$33,344 per million diesel miles.

DEPRECIATION shown in Table 1 is determined by deducting from the purchase price of equipment, the replacement cost of tires plus 10 per cent trade-in value of equipment and divid-

ing the remainder, or amount to be depreciated, by 200,000 miles.

For the purpose of comparing cost



Trucks typical of those used in the diesel-gas engine tests

**THE MINUTE YOU SEE
THESE BIG, RUGGED
GEARS, YOU'LL SAY...**

"That's the job for my money!"

**THE TIMKEN
2-SPEED
AXLE**

**NOW
BUILT IN TWO SIZES**

- ▼ a fast ratio for speed
- ▼ a slow ratio for grades
- ▼ husky, dependable Wisconsin Double Reduction Drive
- ▼ accessible, easily removable carrier unit
- ▼ simple, easy-to-operate shift

the world's largest axle builder



THE TIMKEN-DETROIT AXLE COMPANY
Detroit, Michigan
WISCONSIN AXLE DIVISION
Oshkosh, Wisconsin



of diesel truck operation with gasoline truck operation, this item of depreciation is relatively important. The item of depreciation when viewed solely as an expense item is of even greater importance. The years of useful life which may be expected from any truck or trailer depends upon the number of miles it runs per year, with the maximum number of miles of useful life limited by obsolescence.

If we find from experience that a truck averaging 10,000 miles per year has a useful life of five years, it follows that if the mileage is increased to 50,000 miles per year the life expectancy is reduced.

The experience of the Pacific Freight Lines would indicate an economic mileage life of 400,000 miles for gasoline trucks and 450,000 miles for diesel trucks and 500,000 miles for trailers for equipment having a range of investment of \$8,000 to \$10,000 for trucks and \$3,000 to \$4,000 for trailers. (California operations over primary highways.)

The California Railroad Commission has just recommended, through its Engineering Department, rates of depreciation for 10 and 15-ton trucks or tractor trucks and 20-ton truck and trailer. The Commission's study is shown in Table 2. The amount depreciated in each case is total investment less cost of tires and 5 per cent salvage value. The recommendations are for gasoline equipment.

Pacific Freight Lines' experience indicates that diesel equipment should not be depreciated as rapidly as gasoline equipment due to the fact that the lower running temperatures of diesel motors result in a longer life for diesels. A few of the diesel trucks in the fleet, that have run 500,000 miles or over, are being maintained on a basis of being in good condition.

ASI Groups Agree On Show

The three groups interested in the Automotive Service Industries show have finally agreed to a joint show this year to be held in Chicago, Dec. 9. They are the Motor and Equipment Manufacturers' Association, Motor and Equipment Wholesalers' Association and the National Standard Parts Association.



**YOU'RE CLOSING YOUR OWN EARS
TO THE KNOCK OF OPPORTUNITY
... if you don't get the full facts about**



... EDISON ...

a name known in every language

What's in a name? *International recognition and regard*—when you're speaking of the name EDISON! What's in it for the fleet owner? Spark Plug performance that is establishing new records for distance and economy!

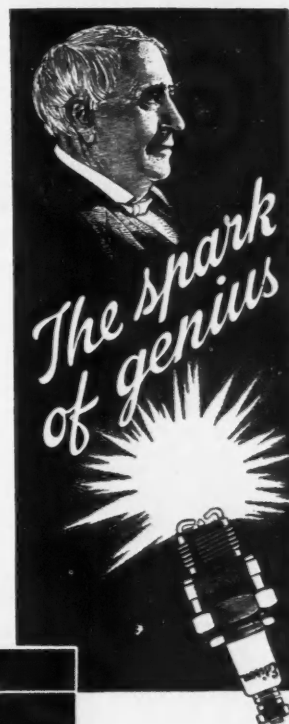
Read what this parts company says about the experience of one of its customers:

"We are sending to you herewith eight Edison Spark Plugs which have just been removed from a test run in one of a fleet of Ford V-8 tractor-trailer combinations.

The mileage is 10615 in No. 74 truck and the plugs were removed on the 23rd inst. For your information we may state that the Company was very well satisfied with the performance and next week will remove another set which up to the early part of this week had given nearly 9000 miles. *They state that no competitive plug has ever given anything like this performance.*"

Don't close your ears to the knock of opportunity. Get the full facts about Edison Spark Plugs—right now!

EDISON-Splitdorf Corporation • West Orange, N. J.



Service Tips On Air Brakes

(CONTINUED FROM PAGE 15)

3) on both sides so that inlet valve plunger pin and trigger plunger pin (No. 2, Fig. 3) is .015 to .020 in. For close range this clearance should be held to .015. If pulsations are felt in holding feeler between the trigger plunger pin and the inlet valve plunger pin, it is an indication that the inlet valves are held open.

3. Adjust one plunger housing stop screw (No. 3, Fig. 3) so that the dis-

engaging plunger (No. 4, Fig. 3) nose angle coincides with the trigger (No. 5, Fig. 3) nose angle. Set the other plunger housing stop screw into the same position as the one just adjusted. Screw slots should be positioned so plunger stop adjusting screw locks (No. 6, Fig. 3) can be installed.

4. Connect compressor to reservoir still running. When the pressure in the reservoir builds up to maximum the plunger will move to the upper side of the trigger face. While in this position and before the pressure drops adjust one governor (No. 7, Fig. 3) stop by bending prongs evenly up or

down so that the plunger nose angle coincides with the trigger nose angle. This might be tried several times by allowing the pressure in the reservoir to drop and build up again.

5. Adjust other set of governor stop prongs into same position. Be sure governor stops do not press on side of plunger housing stop screws.

Reservoirs

THE reservoirs simply store the air so that it is on top when required to operate the brake system. It is impossible to repair them satisfactorily once they have been damaged. They should be drained of condensation daily in cold weather and at least twice a week in warm weather. The safety valve on top of the reservoir is usually set to open at 150 lb. It should be cleaned, inspected and reset once a year. After installation the valve should be checked for leakage.

Brake Application Valve

PRESSURE upon the brake pedal causes the diaphragm in the brake application valve to react opening the inlet valve and closing the exhaust valve. When the pressure is removed the exact reverse takes place. The exhaust valve opens permitting the compressed air which was admitted when the inlet valve opened to escape to atmosphere and the inlet valve closes stopping further admission of air to the system. The brake valve should be tested for leakage every 5000 miles and can be done in the following manner:

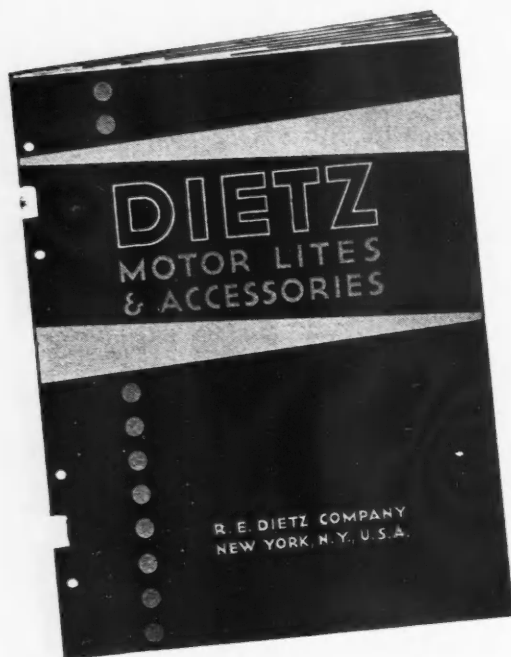
1. With pedal in release position test intake valve for leaks by applying soap suds on exhaust port.
2. With pedal in applied position test exhaust valve for leaks by applying soap suds on exhaust port. If leakage in these tests is more than 3 in. bubble in 3 seconds the valve needs reconditioning.
3. Check with test gage pressure delivered by pressing pedal to floor. If pressure obtained is less than shown on instrument panel, pedal rod should be shortened or clevis should be connected to one of upper holes in brake valve lever. Make sure that lever is free from binding and that lever tip does not strain valve cover when in full operating position and that lever is against stop in full release position.

Quick Release Valve

A QUICK release valve is usually fitted near the rear brake in order to exhaust the pressure to atmosphere immediately upon release. This valve should be tested for leakage by applying soap suds on exhaust port with

(TURN TO PAGE 48, PLEASE)

..... IT PAYS TO KEEP YOUR INFORMATION UP - TO - THE - MINUTE ON APPROVED LIGHTING & SIGNALING DEVICES FOR TRUCKS, BUSES AND AUTOMOBILES



DIETZ

NEW

CATALOG IS JUST OUT

A Request Will Bring A Copy For Your Files

CONTENTS INCLUDE

Headlites, Searchlites, Floodlites, Spot Lites, Road and Fog Lites.

Marker or Clearance Lites, Stop and Tail Lites, Dome Lites and Cataphote Reflectors.

Direction Signals, Motor Truck Flare Kits, Fire Extinguishers and Rear Vision Mirrors.

BECAUSE of the changes that are constantly taking place in lighting and signaling requirements for motor trucks and busses, this new Catalog should prove interesting for reference, particularly as it illustrates the latest models in approved equipment, with sufficient variety of styles and types to meet every need or preference.

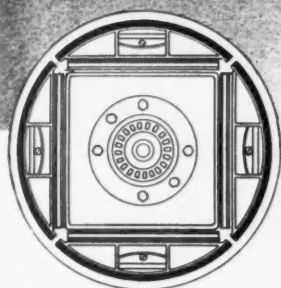
R. E. DIETZ COMPANY, NEW YORK
Pioneer Makers of Vehicle Lamps, Founded 1840

HEAD LIGHTS • TAIL LIGHTS • MARKER LIGHTS • DITCH, FOG & SPOT LIGHTS • DIRECTION SIGNALS
TRUCK FLARES • REAR VISION MIRRORS • FLOOD LIGHTS • CATAPHOTE REFLECTORS • FIRE EXTINGUISHERS

for acc
and we are
submit this report
Lining wear - negligible
* Maintenance - nil

Yours v
W

"Lining wear - negligible Maintenance - nil."



"A Drum Full of Lining— and the same pressure under every square inch"

This means permanent, built-in equalization, increased load capacity, without increasing brake size, unchangeable performance, smoother stops, longer tire life, **GUARANTEED** tripled lining life, and vastly reduced maintenance.

Write for catalog of Linderman brakes, containing detailed discussions on their operation, construction, installation and service.

LINDERMAN DEVICES, INC.
148 BROADWAY, NEW YORK, N. Y.
Factories at Newburgh, N. Y.
and Woodstock, Ontario

Tripled lining life is not only possible with Linderman brakes—it is guaranteed. The phenomenal mileages reported by operators—frequently averaging less than half a thousandth of an inch wear per 1000 miles—are offered as evidence of our claim that the elimination of self-energizing action, high localized lining pressures and temperatures, in Linderman brakes make lining

wear a negligible factor in fleet operation.

No adjustments for equalization—no wearing parts—elimination of drum scoring—tripled lining life or better—are Linderman features which combine to make possible such reports from the field as "maintenance costs—nil."

**From a prominent fleet operator's report in our files covering his first 100,000 miles with Linderman brakes.*

LINDERMAN BRAKES *for Vehicle* CONTROL

(CONTINUED FROM PAGE 46)

brakes applied. As brakes are released see that valve releases immediately with corresponding movement of the pedal. Leakage may be caused by dirt in the valve or a defective diaphragm.

Brake Chambers or Cylinders

THE brake cams are operated by brake chambers containing diaphragms in the case of the Bendix-Westinghouse brake and by a cylinder containing a piston (Fig. 4) in the Midland Christensen brake. The linkage from

brake chamber to the cam on the Westinghouse brake is usually a slack adjuster which has an external adjusting nut (A, Fig. 1). The push rod travel should be kept to $\frac{3}{4}$ in. to $\frac{7}{8}$ in. for best results. The travel on the Midland push rod should be kept to $\frac{3}{4}$ in. to 1 in. and this can be done by adjusting the clevis in the push rod which is done by a screw adjustment.

The brake chambers should be tested for leaks by applying soap suds around outer edge with brakes applied. Diaphragms should be changed about every 50,000 miles. Brake cylinders are assembled with a little lubricant in

them and this should be renewed about every six months. 600-W is a good lubricant to use. If the cylinders become leaky the rubber piston cups require replacement.

Brake Lines

All kinked or chafed brake lines should be replaced when found upon regular inspection. Most leaks can be located by ear by merely leaving the pedal depressed and the engine turned off. If, however, the pressure shows an appreciable drop in 10 minutes and no leak can be heard it will be necessary to locate it with soap suds.

20-Ton Economy Run

(CONTINUED FROM PAGE 25)

Average cost per gal. gas	18.52c
Gas cost per vehicle mile	3.62c
Gas cost per ton-mile of gross weight	.1720c
Gas cost per ton-mile of net payload	.2364c
Fuel and oil cost per ton-mile of net payload	.2392c
Per cent payload weight to gross weight	72.73
Per cent vehicle weight to gross weight	27.27

Thornton transfer case and two rear axles consumed 1.4 lb. of lubricant at a cost of 35 cents.

The total motor oil cost was \$1.11. Total gas cost was \$95.56.

These figures were established driving under full load through 20 cities and over such road surfaces as tarvia, black-top, macadam, brick and various grades of concrete. Facts on hill climbing ability were recorded at Mt. Lebanon in the Berkshires, Mass., when $3\frac{1}{2}$ miles were negotiated in 33 minutes in low second gear. Jacob's Ladder, elevation 2300 ft., required 30 minutes in low second. In Pennsylvania, Tuscarora Mountain, elevation 2123 ft., required 58 minutes in low gear. Seidling Mountain, elevation 2195 ft., a 3-mile 9 per cent grade, required 51 minutes in creeper gear. Bald Knob, in the Alleghenies, elevation 2906 ft., required 73 minutes in creeper gear.

Complete equipment used was a Thornton - Chevrolet 153 $\frac{1}{2}$ - in. wheel-base tractor, Thornton drive Model AC, with additional standard Chevrolet axle, Bendix booster brakes, Austin fifth wheel, Trailmobile semi-trailer with tandem axle, 22 ft. length, 18 Goodrich 32 x 6 10-ply Silvertown heavy-duty express tires, Stewart - Warner tachometer and a Veeder-Root hubometer.

AAA official observers were E. Von Humbach, Stanley Reed and Harold Baxter.

COMMERCIAL CAR JOURNAL
AUGUST, 1936

Background FOR PERFECT LUBRICATION

The above illustration is an electron diffraction pattern identifying a graphoid surface on cast iron. + Modern research has not only proved through electron diffraction methods the presence of the graphoid surface, but has gone further and shown that friction so aligns the graphite particles on metal as to safe-

ACHESON COLLOIDS CORPORATION + PORT HURON, MICHIGAN

guard "shock points" against wear-producing metal-to-metal contact. Further, this surface, formed with oils which contain "dag" colloidal graphite, has greater attraction for oil than does bare metal, minimizing oil film rupture. Clearly, this surface provides a background for perfect lubrication. + Write for booklet.

Ask your oil supplier about his colloidal-graphited brands today.



© 1936, A.C.C.

COLLOIDAL GRAPHITE

ACHESON COLLOIDS CORPORATION
Port Huron, Michigan

Please send gratis, story on "dag" colloidal graphite.

Name
Address
City

NEWS

(CONTINUED FROM PAGE 38)

Six Truck Makers At Show

Six makes of trucks and 23 of passenger cars will be on the floor when the National Automobile Show opens in New York on Armistice Day.

At least three makes of tourist trailers will be shown. The Diesel-engine and shop equipment exhibits will be larger than last year. Action at the factories, safety on the highways will dominate the decorations and exhibits.

Chevrolet Sales Zoom

For the first six months of this year Chevrolet reports 119,294 truck sales, highest sales period in the company's history. This exceeds the second best six-months sales period in 1929 by approximately 17,000 units.

Fruehauf Moves in Hartford

The new address of the Hartford, Conn., branch of the Fruehauf Trailer Co. is 2280 Main St.

Diamond T Sales Leap

Sales of Diamond T trucks soared to an all-time record in June. A total of 1533 orders were received during the 30 days, which represented a 66 per cent increase over June sales last year. This marked the fourth successive month in which all records of any previous year were shattered.

Trucks Show Fitness

While 60 per cent of passenger cars inspected in Chicago since July 1 under the new "automobile fitness law" have been rejected as faulty and unsafe, less than 10 per cent of trucks have been rejected. The city motor bureau declares that those commercial vehicles which are found to be unsafe are mainly those owned and operated by private haulers. Fleet equipment has been found okay in all respects.

Eaton Reports Large Gain

The Eaton Mfg. Co., and subsidiaries reported net earnings for the quarter ended June 30 of \$751,902 after all charges, including provision for taxes. This compares with \$436,688 for the second quarter of 1935.

N-L Ventilation for White Trucks

Evans N-L exhaust ventilation will be standard equipment on all White Motor truck cabs, according to terms of a contract closed today between the Evans Products Co., Detroit, and White Motor Co., Cleveland.

Autocar-Studebaker Sales Up

Increased sales for the first half of 1936 of Autocar trucks are 60 per cent ahead of 1935, and of Studebaker trucks 75 per cent ahead of 1935, R. P. Page, Jr., president of Autocar, reports.

Federal-Mogul Branch

Opening of a new branch warehouse at 1314 Jones Street, Omaha, Neb., is announced by the Federal-Mogul Corp., Detroit, Mich.

COMMERCIAL CAR JOURNAL
August, 1936

Middlesex Truck Co. Gets Schwarzkopf

Colonel H. Norman Schwarzkopf, former head of the New Jersey state police, has become a vice-president in charge of operations of the Middlesex Transportation Co., Newark, N. J.

Elliot Is Vice-President

K. B. Elliot has been elected vice-president of the Studebaker Corp.

Gatke Representation in Boston

Warehouse representation for the Gatke

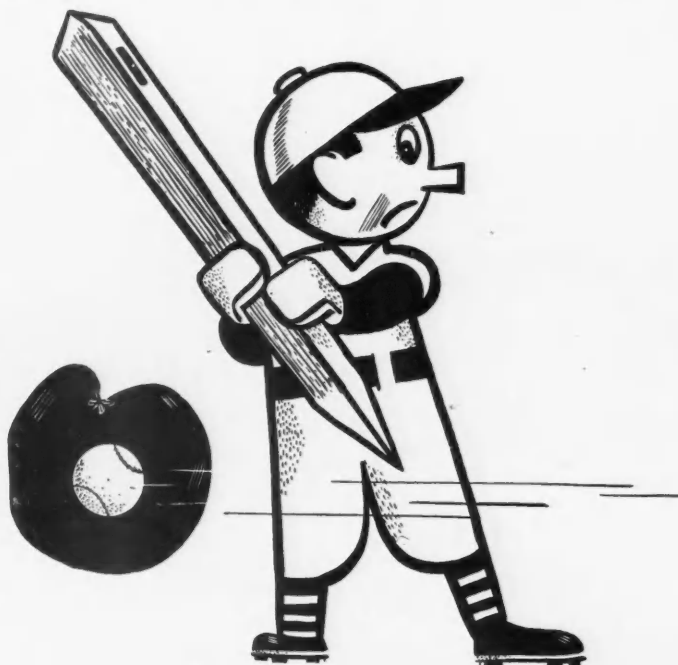
Corp. in Boston will be with the Arrow Head Piston & Pin Co., 4 Maitland Street.

Cook Goes to Tumbler

C. B. Cook has joined the J. A. Tumbler Laboratories as sales manager. He was formerly with Edison-Splitdorf Corp.

Schultheis With Clark

E. M. Schultheis has joined the Clark Equipment Co., Buchanan, Mich. He was formerly with Timken Roller Bearing Co.
(ADDITIONAL NEWS ON PAGE 62)

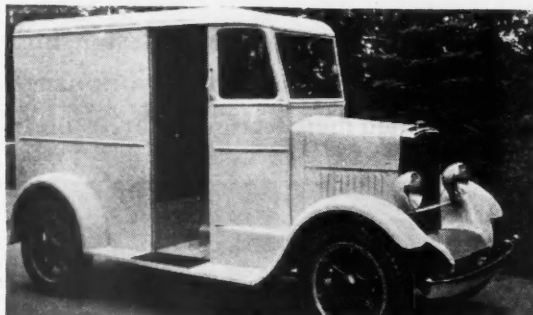


COULD A "SWAT KING" KNOCK HOME RUNS WITH A FENCE POST?

The powerful, home run hitters in the Major League would find a fence post a whale of a handicap... too heavy to get into quick action... too unwieldy for accurate hitting. But a "Swat King" with a fence post is no more out of order than a truck or trailer loaded with unnecessary body weight. Dead weight in a truck is like a fence post in a ball player's hand.

Haskelite Plymetl truck paneling eliminates dead weight, makes flatter, smoother sides and stronger bodies... Plymetl is many times stronger than steel of the same weight. These light, strong bodies of Plymetl mean bigger and more profitable payloads.

Insist upon Plymetl in your next specifications.



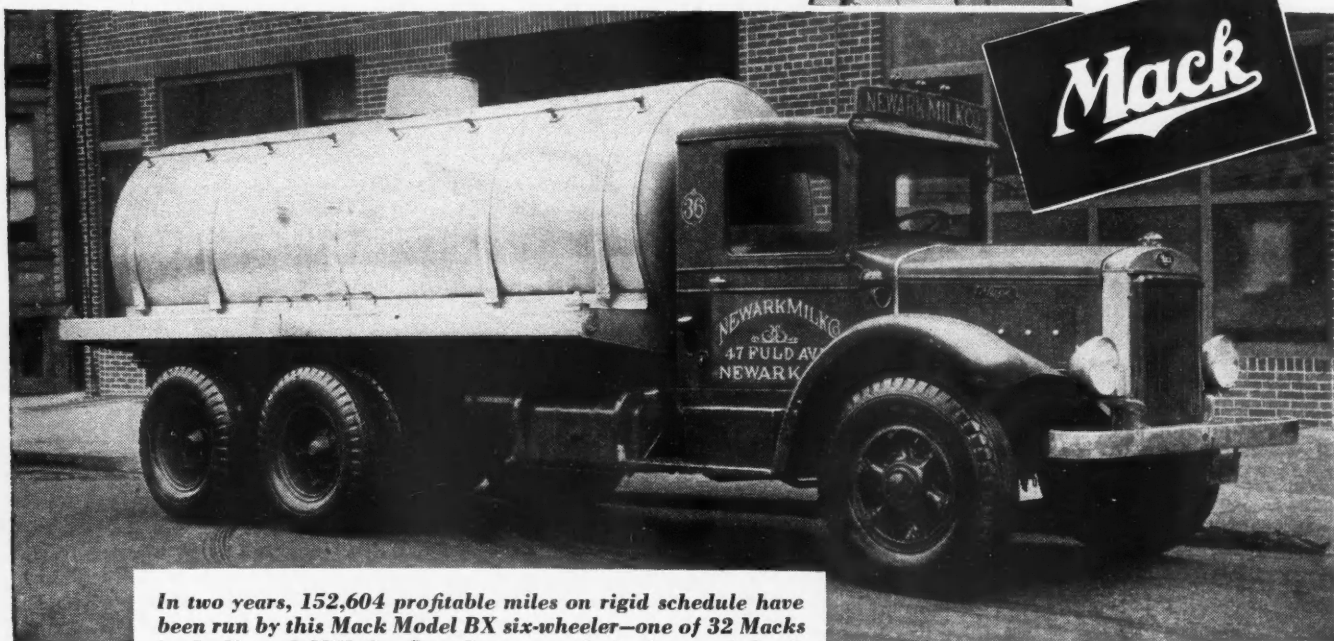
NEW DOOR-TO-DOOR DELIVERY VEHICLE MADE BY DIVCO TWIN TRUCK CO. WITH PLYMETL BODY

HASKELITE MANUFACTURING CORPORATION

208 WEST WASHINGTON STREET, CHICAGO, ILLINOIS

*"I wish to preach...
the strenuous life"*

—THEODORE ROOSEVELT



In two years, 152,604 profitable miles on rigid schedule have been run by this Mack Model BX six-wheeler—one of 32 Macks in the Newark Milk Co. fleet. Seven months in the year it hauls a tank trailer. Total cost per commercial ton-mile—1 2/3 cents.

STRENUOUS SERVICE PAYS—WITH MACKS

THE harder a truck works, the more it earns. That is true of any productive machinery. Lowest costs of transportation are never realized where the going is easy. It pays to keep trucks working at maximum capacity; but they must be built to stand up.

Quality construction throughout builds stamina into Macks. And it is stamina of the Mack kind that gives them their recog-

nized ability to stay on the road and out of the shop; to run tough, rigid schedules; and to pile up mileage and tonnage records that mean profits for their owners.

Strenuous service is the secret of the Newark Milk Company's remarkable record; that and Mack trucks, whose correct design, high-grade materials and superior workmanship give them the stamina to thrive on intensive operation.

*Mack quality makes
operation Safer*



MACK TRUCKS, INC.
25 BROADWAY • NEW YORK CITY

The Specifications Table is brought up to date in each issue from data supplied monthly by truck manufacturers

KEY TO ABBREVIATIONS AND REFERENCE MARKS

GENERAL

Make and Model—Only basic models are listed. Variations are available on request.

Tonnage Rating—Where a spread of ratings is given the maximum ratings are for ideal operating conditions and for normal conditions. Where a single rating is given it is for normal conditions.

Chassis Price—Chassis price quoted applies to standard wheelbase with standard tires. All prices are F.O.B.

Gross Vehicle Weight—Is chassis weight stripped, plus body and cab weight, plus payload. Gross vehicle weight is based on maximum recommended tire size, not on tires listed as standard.

Chassis Weight Stripped—Is weight of standard chassis with standard equipment, with crankcase and cooling system full, and 5 gal. of gasoline in tank. Conditions are noted weight of cab. Exclusions are noted.

Maximum Tire Size—Is furnished at extra cost, if the maximum differs from the standard tire size. Dual rear axle undershoes except where otherwise noted.

R.P.M.—In actual dynamometer reading without accessories.

Gear Ratio Range in High—Ratios within the range given are available at no extra cost. Exceptions are noted.

Tractor Unit—Is a unit which can be used as tractor or hauler. All standard models may be assumed to be available as tractors.

(D)—Diesel equipped.

(N)—Not available as tractor.

(T)—Specifically designed for tractor use only.

Cab-over-engine design—Is a design in which the engine is mounted under the seat.

(2) General Motors—Tire size indicated in column "Max. Tire Size" is for normal operating conditions. Models T-16H, T-16H to T-16H inclusive are also available for 4.57 to 1 gear ratio. Models T-16H to T-16H inclusive are also available for 4.57 to 1 gear ratio.

Performance rear axle at extra cost—Is a design in which the rear axle is designed for extra duty.

Models T-16, T-16H, T-18, T-18H, T-23, T-23H, T-33, T-33H and T-46—Double reduction rear axle at extra cost.

Double reduction rear axle at extra cost—Is a design in which the rear axle is designed for extra duty.

Models T-16, T-16H, T-18, T-18H, T-23, T-23H, T-33, T-33H and T-46—Double reduction rear axle at extra cost.

Double reduction rear axle at extra cost—Is a design in which the rear axle is designed for extra duty.

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Models T-16, T-16H, T-18, T-18H, T-23, T-23H, T-33, T-33H and T-46—Double reduction rear axle at extra cost.

gines, transmissions, etc., and prices will be quoted upon application.

(3) **Lockheed**—Model C-10, 1-ton, same as C-20 except less spring leaves. Model C-12, 1-ton, same as C-30 except less rear spring leaves.

(4) **Reo**—2J, 2K same as 2H except 166 in. wheelbase. 2L same as 2H except 170 in. wheelbase. 2M same as 2H except 170 in. wheelbase. 2N same as 2H except 170 in. wheelbase. 2P same as 2H except 170 in. wheelbase. 2Q same as 2H except 170 in. wheelbase. 2R same as 2H except 170 in. wheelbase. 2S same as 2H except 170 in. wheelbase. 2T same as 2H except 170 in. wheelbase. 2U same as 2H except 170 in. wheelbase. 2V same as 2H except 170 in. wheelbase. 2W same as 2H except 170 in. wheelbase. 2X same as 2H except 170 in. wheelbase. 2Y same as 2H except 170 in. wheelbase. 2Z same as 2H except 170 in. wheelbase.

(5) **White**—Each model shown is furnished with different specifications for different tonnage ratings. (6) **Factory**—Governed speed 2400 r.p.m. (7) **Tractor**—Tractor rating only.

(8) **Autocar**—Larger service brake areas on rear axles are provided when tires of 24" base are supplied.

(9) **Brake**—Brake on four rear wheels effective on all wheels through driveline.

(10) **Brake**—Brake on four rear wheels effective on all wheels through driveline.

(11) **Brake**—Brake on four rear wheels effective on all wheels through driveline.

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(30) **Brake**—Brake on four rear wheels effective on all wheels through driveline.

(31) **Brake**—Brake on four rear wheels effective on all wheels through driveline.

Li—Lipe, W. C. front, own rear.

Lv—Lockheed, front, Wisconsin rear.

Ly—Lycoming.

O or **Ow**—Own.

Op or **Opt**—Optional.

Shu—Shuler.

St or **St-T**—Steele.

T or **T-T**—Timken.

TW—Timken-Wisconsin.

W—Warner.

W-H—Waukesha.

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FRAME

Type

L—Lipe, W. C. front, own rear.

Lv—Lockheed, front, Wisconsin rear.

Ly—Lycoming.

O or **Ow**—Own.

Op or **Opt**—Optional.

Shu—Shuler.

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GOVERNOR STANDARD

Type

L—Lipe, W. C. front, own rear.

Lv—Lockheed, front, Wisconsin rear.

Ly—Lycoming.

O or **Ow**—Own.

Op or **Opt**—Optional.

Shu—Shuler.

St or **St-T**—Steele.

T or **T-T**—Timken.

TW—Timken-Wisconsin.

W—Warner.

W-H—Waukesha.

W-W—Westinghouse.

W-H—Waukesha.

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† Rear 32 x 6.

[illegible]

Model	Eng.	HP	Top Speed	Acc.	Range	Capacity	Weight	Price	Notes
120 International	120	120	120	120	120	120	120	120	
121	121	121	121	121	121	121	121	121	
122	122	122	122	122	122	122	122	122	
123	123	123	123	123	123	123	123	123	
124	124	124	124	124	124	124	124	124	
125	125	125	125	125	125	125	125	125	
126	126	126	126	126	126	126	126	126	
127	127	127	127	127	127	127	127	127	
128	128	128	128	128	128	128	128	128	
129	129	129	129	129	129	129	129	129	
130	130	130	130	130	130	130	130	130	
131	131	131	131	131	131	131	131	131	
132	132	132	132	132	132	132	132	132	
133	133	133	133	133	133	133	133	133	
134	134	134	134	134	134	134	134	134	
135	135	135	135	135	135	135	135	135	
136	136	136	136	136	136	136	136	136	
137	137	137	137	137	137	137	137	137	
138	138	138	138	138	138	138	138	138	
139	139	139	139	139	139	139	139	139	
140	140	140	140	140	140	140	140	140	
141	141	141	141	141	141	141	141	141	
142	142	142	142	142	142	142	142	142	
143	143	143	143	143	143	143	143	143	
144	144	144	144	144	144	144	144	144	
145	145	145	145	145	145	145	145	145	
146	146	146	146	146	146	146	146	146	
147	147	147	147	147	147	147	147	147	
148	148	148	148	148	148	148	148	148	
149	149	149	149	149	149	149	149	149	
150	150	150	150	150	150	150	150	150	
151	151	151	151	151	151	151	151	151	
152	152	152	152	152	152	152	152	152	
153	153	153	153	153	153	153	153	153	
154	154	154	154	154	154	154	154	154	
155	155	155	155	155	155	155	155	155	
156	156	156	156	156	156	156	156	156	
157	157	157	157	157	157	157	157	157	
158	158	158	158	158	158	158	158	158	
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162	162	162	162	162	162	162	162	162	
163	163	163	163	163	163	163	163	163	
164	164	164	164	164	164	164	164	164	
165	165	165	165	165	165	165	165	165	
166	166	166	166	166	166	166	166	166	
167	167	167	167	167	167	167	167	167	
168	168	168	168	168	168	168	168	168	
169	169	169	169	169	169	169	169	169	
170	170	170	170	170	170	170	170	170	
171	171	171	171	171	171	171	171	171	
172	172	172	172	172	172	172	172	172	
173	173	173	173	173	173	173	173	173	
174	174	174	174	174	174	174	174	174	
175	175	175	175	175	175	175	175	175	
176	176	176	176	176	176	176	176	176	
177	177	177	177	177	177	177	177	177	
178	178	178	178	178	178	178	178	178	
179	179	179	179	179	179	179	179	179	
180	180	180	180	180	180	180	180	180	
181	181	181	181	181	181	181	181	181	
182	182	182	182	182	182	182	182	182	
183	183	183	183	183	183	183	183	183	
184	184	184	184	184	184	184	184	184	
185	185	185	185	185	185	185	185	185	
186	186	186	186	186	186	186	186	186	
187	187	187	187	187	187	187	187	187	
188	188	188	188	188	188	188	188	188	
189	189	189	189	189	189	189	189	189	
190	190	190	190	190	190	190	190	190	
191	191	191	191	191	191	191	191	191	
192	192	192	192	192	192	192	192	192	
193	193	193	193	193	193	193	193	193	
194	194	194	194	194	194	194	194	194	
195	195	195	195	195	195	195	195	195	
196	196	196	196	196	196	196	196	196	
197	197	197	197	197	197	197	197	197	
198	198	198	198	198	198	198	198	198	
199	199	199	199	199	199	199	199	199	
200	200	200	200	200	200	200	200	200	

† Denotes New Models or Change in Specifications.
‡ Rear 32 x 6 * Rear 8.25/20 † Rear 9.0/20

Line Number	MAKE AND MODEL	GENERAL (See Keynote)				TIRE SIZES				ENGINE DETAILS				TRANS-MISSION		REAR AXLE		FRONT AXLE	BRAKES			FRAME											
		Chassis Price	Standard Wheelbase	Gross Vehicle Weight	Chassis Wt. (Striped)	Standard Front and Rear	Dual rear Seating rear	Max. Wt. B.	Chassis Wt.	No. of Cylinders	Displacement	Comp. Ratio	Torque lb. ft.	Max. H.P. at R.P.M.	Main Bearings Diameter and Length	Governor Standard	Make and Model	Forward Spd's	Make and Model	Clear and Type	Drive & Torque	Clear Ratio	Range in High	Make and Model	Location	Operat'n Type	Area Lining	Drum Material	Hand Location	C-A Dimensions (Std. W. B.)	Side Rail Dimensions	Type	
1	Mack	2250	158 194	6500	6000	7.00/20D	9.00/20	6500	6000	6-3 1/2 x 5	310.5	4.202	90-3000	90-3000	7-2 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	370	686 a	370	686 a	XL	84 7/8 x 3 1/2	84 7/8 x 3 1/2	L
2	(a)	3000	156 192	6500	6000	32x7D	32x7D	6500	6000	6-3 1/2 x 5	310.5	4.202	90-3000	90-3000	7-2 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	370	686 a	370	686 a	XL	84 7/8 x 3 1/2	84 7/8 x 3 1/2	L
3	BF2	4000	174 210	8100	8100	8.25/20D	9.75/20	8100	8100	6-3 1/2 x 5	354.5	4.237	100-2800	100-2800	7-2 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	431	709 a	431	709 a	FX	102 1/2 x 3 1/2	102 1/2 x 3 1/2	L
4	AB2	4000	174 210	8100	8100	34x7D	34x7D	8100	8100	6-3 1/2 x 5	354.5	4.237	100-2800	100-2800	7-2 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	431	709 a	431	709 a	FX	102 1/2 x 3 1/2	102 1/2 x 3 1/2	L
5	BM2	4700	175 211	9175	9175	9.00/20D	9.75/20	9175	9175	6-4 1/2 x 5	415.5	4.270	108-2400	108-2400	7-3 1/2 x 12	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	562	920 a	562	920 a	FX	102 1/2 x 3 1/2	102 1/2 x 3 1/2	L
6	BM2	4700	175 211	9175	9175	9.00/20D	9.75/20	9175	9175	6-4 1/2 x 5	415.5	4.270	108-2400	108-2400	7-3 1/2 x 12	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	562	920 a	562	920 a	FX	102 1/2 x 3 1/2	102 1/2 x 3 1/2	L
7	BM2	6250	189 225	11200	10925	9.75/22D	10.50/24	11200	10925	6-4 1/2 x 5	468.5	4.310	118-2400	118-2400	7-3 1/2 x 12	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	649	976 a	649	976 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
8	BM2	6250	189 225	11200	10925	9.75/22D	10.50/24	11200	10925	6-4 1/2 x 5	468.5	4.310	118-2400	118-2400	7-3 1/2 x 12	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	649	976 a	649	976 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
9	BM2	6250	189 225	11200	10925	9.75/22D	10.50/24	11200	10925	6-4 1/2 x 5	468.5	4.310	118-2400	118-2400	7-3 1/2 x 12	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	649	976 a	649	976 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
10	BM2	6250	189 225	11200	10925	9.75/22D	10.50/24	11200	10925	6-4 1/2 x 5	468.5	4.310	118-2400	118-2400	7-3 1/2 x 12	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	649	976 a	649	976 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
11	BM2	7600	194 228	12500	12000	10.50/24D	11.25/24	12500	12000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
12	BM2	7600	194 228	12500	12000	10.50/24D	11.25/24	12500	12000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
13	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
14	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
15	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
16	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
17	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
18	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
19	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
20	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
21	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
22	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
23	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
24	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
25	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
26	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
27	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
28	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
29	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
30	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
31	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 52502H	L41HV	781	1194 a	781	1194 a	FX	120 9/16 x 3 1/2	120 9/16 x 3 1/2	L
32	BM2	8250	186 240	14200	14000	10.50/24D	13.50/24	14200	14000	6-4 1/2 x 5	611.4	4.390	125-2200	125-2200	7-3 1/2 x 10 1/2	Y	56411H	5	56411H	SE	H 4.44-7.40	H 4.90-6.71	Own BG	Tim 5									

Six-Wheeler

(CONTINUED FROM PAGE 51)

Transmission Option on Ford

At an addition of \$5 to the list price of commercial units the Ford Motor Co. is offering a transmission which is said to increase pulling power 30 per cent in low gear and 18 per cent in intermediate. On the new transmission, known as the "67," third speed is direct drive as the standard transmission.

White Profit Is \$287,421

White Motor Co. in the first half of 1936 was able to produce a net profit of \$287,421, the first profit it has shown since the mid-year statement in 1930. The showing is equal to 45c a share on the company's 625,000 shares of common stock, its only capital issue.

Studebaker Names 82 Dealers

Studebaker signed 82 new dealers in the United States in the month of June, according to an announcement from George D. Keller, vice-president in charge of sales for the corporation.

IHC Elects Two

Fowler McCormick and Arnold B. Keller have been elected to membership on the board of directors of International Harvester Co. Mr. McCormick is second vice-president of the company in the charge of foreign sales. Mr. Keller is treasurer.

New United Cork Plant

Because of the great demand for its new, patented process BB (block baked) corkwood, United Cork Co. has started the erection of a new plant at Kearny, N. J.

Larger Vel-Vac Plant

The Vacuum Power Equipment Co. has moved to larger quarters and is now located at 1644 W. Lafayette Blvd., Detroit. Increased demand for Vel-Vac equipment necessitated the move.

Sleepers Cabs N.G. in N. Y.

The ten-hour working limit of truck and bus drivers in New York was interpreted last week by Attorney-General Bennett to include the time the man actually is on the job, whether driving or doing other work.

He ruled that the requirement for an off-duty period of eight hours could not be circumvented by the use of a bunk or cot on a bus or truck, to be occupied by the driver during the off-duty period.

ICC Stays Acquisition of Truck Line

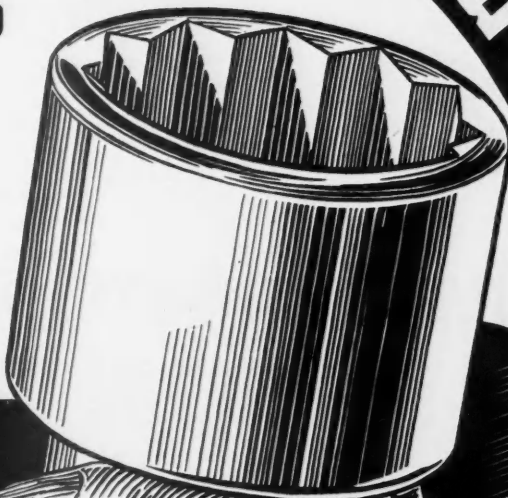
The ICC has stayed absorption of the Barker Motor Freight, Inc., operating 34 vehicles in Pennsylvania, Ohio, Indiana, Michigan, West Virginia and Kentucky by Pennsylvania Truck Lines, Inc., a subsidiary of the Pennsylvania Railroad.

COMMERCIAL CAR JOURNAL
AUGUST, 1936

Line Number	MAKE AND MODEL	GENERAL (See Keynote)				TIRE SIZES		ENGINE DETAILS							TRANSMISSION		REAR AXLE		FRONT AXLE	BRAKES				FRAME																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		Rating	Chassis Price	Standard Wheelbase	Max. Wt. B. B.	Gross Vehicle Weight with Max. Tires	Chassis Wt. (Striped)	Standard Front and Rear	D-dual rear	No. of Cylinders	Stroke and Displacement	Comp. Ratio	Torque lb. ft.	H.P. at R.P.M.	Main Bearings	Governor Standard	Make and Model	Forward Spd's		Make and Model	Gear and Type	Drive & Torque	Range in High	Make and Model	SERVICE				C-A Dimension (Std. W. B.)	Side Rail Dimensions	Type																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
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"From Soup to Nuts"

$\frac{3}{16}$ " to $1\frac{13}{16}$ "



From IGNITION to AXLE WORK

Big range in socket sizes in the Big Chief — sure! But that's not all . . . It's top-notch in **QUALITY** too — and **SPEED-LINED** for *fast action!* Rugged tools, built to take the toughest punishment ever handed out in garage or service shop. Efficient tools that lead the way to better jobs — master mechanic — shop foreman — service manager.

Crowding the "Big Chief" for performance-honors are Blackhawk's 70 RD Treasure Chest, 45 CB Junior Treasure Chest, and 14 BD Heavy Duty Set. All sets feature the exclusive Blackhawk "LOCK-ON" for clicking combinations of sockets, handles and extensions into one solid tool.

Ask your Jobber Salesman to tell you the Blackhawk Wrench set story — from soup to nuts. And write us for "Mechanic's Handy Guide."

"Next time Buy Blackhawk"

**BLACKHAWK
MFG. COMPANY**
Dept. CJ-8
Milwaukee, Wis.



Sole Canadian
Distributor:
**The Canadian Fairbanks-
Morse Co., Limited**
Branches in
All Principal Cities

No. 87 WD "Big Chief" Set

87 tools in sturdy case with tool box and drawers — sockets in 4 handle opening sizes — $\frac{1}{4}$ " — $\frac{3}{8}$ " — $\frac{1}{2}$ " — $\frac{3}{4}$ " ranging from $\frac{3}{16}$ " to $1\frac{13}{16}$ " — handles, extensions, ratchets and offsets in each series — plus box types and open ends.



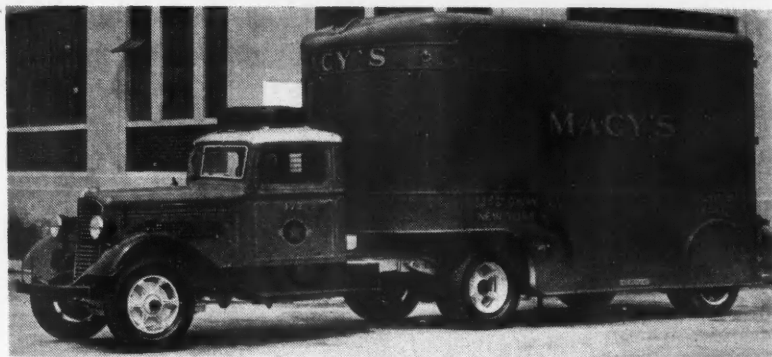
For "LOCK-ON" — slip socket on square drive, hole in line with plunger. For friction-grip, do not line up hole and plunger.

BLACKHAWK Socket Wrenches

Serving 40 million Customers by Truck

(CONTINUED FROM PAGE 29)

from Broadway to Seventh Avenue and from 34th to 35th Street. The building there has 2,000,000 sq. ft. of space, 1,000,000 of which is devoted to 159 selling departments which sell to an average of 133,037 customers every day. The move to the new site was made November, 1902.



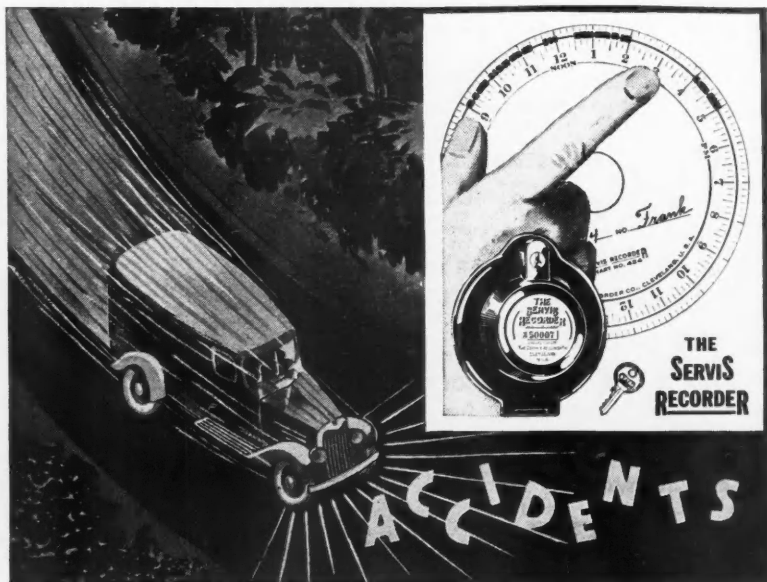
It's a far cry from Macy's first pushcart to this modern transportation unit. The "semi" is used for furniture delivery

How to PREVENT SPEEDING and ACCIDENTS

WHY do trucks speed? They don't speed just for the fun of it. They speed in order to make up wasted time or to get through early so as to have spare time later in the day.

- Well, what's the best way to cure this evil? That's easy: Have it impossible to "make up" wasted time by having this wasted time show up on the chart of the *Servis Recorder*—where you can see it and correct it.
- See, on the chart below, how the truck stood idle from 2:00 to 4:00 in the afternoon. No chance of "making up" that delay, even if the driver does speed and does "get through" on time. The driver knows this, so he doesn't speed and he doesn't have accidents.
- That's the way to cure speeding, and that's why many insurance companies are urging fleet owners to put *Servis Recorders* on their trucks. It makes each truck do a "regular" day's work, and that kind of a truck doesn't speed, because there's nothing to be gained by it. Write for our new booklet.

THE SERVICE RECORDER COMPANY, Cleveland, Ohio



The Servis Recorder
Tells Every Move Your Truck Makes

The store prospered at its new location and grew rapidly. So vast has the business become that Macy's now has buying offices in Paris, London, Shanghai and many other foreign cities. Its buyers travel throughout the world covering thousands of miles going to China, Arabia, Persia and other foreign countries to buy merchandise.

The Delivery Fleet

THE delivery fleet grew with the store. The fleet first manifested itself in a pushcart and push power was supplied by James Wood, Macy's first and original delivery man. The pushcart had been acquired a few years before 1873 when Macy was still located in the red brick building on 6th Avenue. By 1873, however, the pushcart had been supplemented by three horse drawn wagons. From that beginning, the growth of the fleet was steady. By 1883 the delivery fleet had grown to 15 wagons. In 1902 its growth had reached 100. By 1908 Macy had acquired its first mechanized delivery units, which were electric. In 1914, the store went appreciably to gas trucks and by 1922 the fleet consisted of 215 delivery units, the larger number of which were motor driven. Full mechanization of the fleet took place in 1926 which year marked the end of the horse-drawn vehicle.

From 1926 to date the growth of the fleet was characterized by modernization of the equipment. In 1933 the company went into semi-trailer operation for warehouse to store delivery. In 1934 semi-trailers were used for furniture delivery to homes, and the "semi" units were put to further use in 1935. Other developments in design kept step with the development of the fleet itself. In 1934 experiments were made with closed packaged units with the idea of replacing the open screen and curtain side type of units in use. Glass roofed tops were experimented with in 1934 and finally adopted in 1935 for closed jobs. The glass top consists

(TURN TO PAGE 69, PLEASE)

(CONTINUED FROM PAGE 66)

of a section of roof with re-enforced glass to permit the penetration of light into the interior of the truck. So successful has the glass topped roof proved that all closed jobs will eventually be so equipped with glass top sections. Some 20 to 25 vehicles are now so equipped. This will mean that eventually about 280 closed trucks will be so equipped, as that number of vehicles in the fleet are closed jobs. The balance are open or roll-off bodies.

OTHER developments in the package delivery truck took place, such as the vestibule type, now in use, with square wheel-housings so that packages may be stacked around it. Incidentally, the round wheel-housing has been retained in the furniture trucks because it offered no problem. In the vestibule type trucks, all loading and unloading is from the front and a balloon type curtain has been developed to cover the tail load in package trucks. Developments in the furniture type trucks were featured by piano type tailgate hinged so that no crack appeared between the tailgate and body in order to safely roll furniture out of the truck. The broad side of the furniture trucks with smooth panel interior and smooth exterior is designed to cut maintenance and prevent scratching furniture and has great advertising value. Another feature in the furniture trucks is the metal roof constructed so that it would be impossible to poke holes in the roof while moving and stacking furniture. Macy has gone to metal bodies of sheet steel in order to cut weight and maintenance. All late pieces of equipment have deluxe cabs and are streamlined without sacrificing loading space and they are more durable than previous types of truck design.

Macy maintains eight garages to house its 400 odd vehicles. It also maintains five suburban stations for the transfer of merchandise and for garaging trucks. These stations are used as distributing points and are located at Hackensack, N. J.; Flushing, N. Y.; Brooklyn, Staten Island and Long Island, N. Y. From these stations customers are served within a radius of 50 miles of New York. During the summer months a summer delivery fleet operating to the Hamptons in Long Island from the Flushing station covers an area of 150 miles distance.

TRUCKS are serviced at these various stations and garages but all major repairs are done at the repair shop at Macy's Long Island City plant. Trucks are dusted or washed whenever necessary. Although wiped every night, garage foremen decide when a washing

is desirable. Then bar soap is used on the bodies and a cleaning compound on the chassis. An average of 200 trucks are painted yearly. A paint job lasts from 18 to 24 months and the exact life of a paint job is determined by a check on the surface condition of all trucks every three months. The amount of paint used yearly on all refinishing jobs may be estimated in the neighborhood of 400 gal.

Except for the early spring, when about 60 trucks are laid up for storage or repairs, practically the entire fleet is active. Peak months for delivery activities are May and June and from

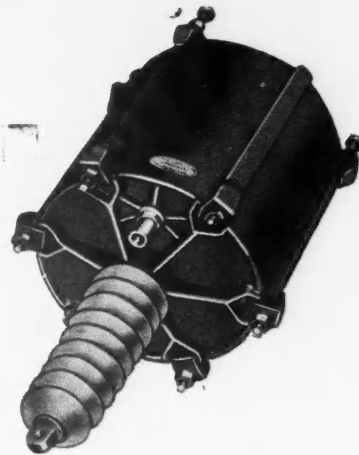
October through December. Package trucks average from 35 miles daily in the city and cover 75 to 150 miles in the country.

However, the average daily mileage, based on figures for the month of December, 1935, was 48 miles for 307 gasoline trucks covering a daily total of 14,736 miles, and an average of 15 miles daily for 69 electrics covering a daily total of 1035 miles. The yearly consumption of gasoline units, based on 1935 figures, was 517,566 gallons; the fleet covered 3,426,891 miles for an average of 6.6 miles per gallon.

(TURN TO PAGE 70, PLEASE)

MIDLAND *Power Brakes*

(Christensen)



Enables
You
To

1 Carry Bigger PAY LOADS

with greater
safety

2 Maintain SCHEDULES

by reducing
Servicing and Failures

QUICK FACTS

Low in initial cost

★

Interchangeable in fleet operation

★

Perfectly controlled stops with "Brake Feel"

★

Serviced by nation-wide organization of Midland Distributors

● You can lower your cost per truck mile and minimize accidents with MIDLAND POWER BRAKES.

Manufactured under exclusive Midland-Christensen patents, Midland Power Brakes are standard with the largest manufacturers of trucks and trailers—endorsed by the largest fleet operators.

Light weight, simple design and sturdy construction are prime reasons why these brakes are highly efficient—yet they *never cost more* and generally *less* than other power brake equipment.

Be sure to specify Midland Power Brakes on new equipment. Consult your nearest Midland Distributor, or send the coupon below for specific Midland facts for your present trucks.

Complete line of Power Brakes—both air and vacuum—including kits for Ford, Chevrolet, Dodge, GMC and International.

MIDLAND STEEL PRODUCTS CO.
10605 MADISON AVE.. : CLEVELAND, O.

MIDLAND STEEL PRODUCTS CO.
10605 Madison Ave., Cleveland, Ohio

Send complete facts and price on Midland Power Brakes fortrucks

Name

Address City & State

These same vehicles used 8591 gallons of oil, obtaining an average of 100 miles per quart. Your guess is as good as ours as to how much Macy spends on oil yearly.

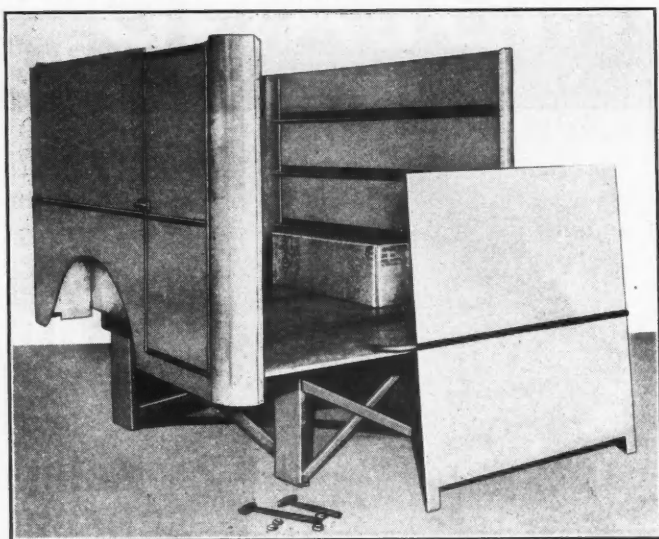
Of the entire fleet of 415 units, 86 or approximately 20 per cent consists of electrics. Total electric truck mileage for 1935 was 230,172.

TO keep these trucks on their feet Macy bought 258 new tires last year and retreaded 275 more. Of those 258 new tires, 192 came on new vehicles replacing 192 old tires on retired vehicles while 66 new tires were bought



Roll-off bodies are used for transporting merchandise to suburban stations. They are loaded directly from the chutes

AS STRONG AS STEEL!



AS LIGHT AS WOOD!

MET-L-WOOD BODIES

Last Longer and Cost Less

Fewer pieces, securely fastened, make Met-L-Wood bodies repair-free.

Met-L-Wood principles of construction have cut the number of parts in a body at least 50%, which means fewer joints to shake loose.

For the points where joints are necessary, Met-L-Wood has devised methods of fastening which do not loosen.

That is why repair costs drop!

Met-L-Wood bodies are built locally by licensed body builders. Write today for name of nearest supplier and full details.

MET-L-WOOD Corporation

6755 W. 65th St., Chicago, Ill.

for general replacement of worn tires. Worn out tires thus discarded are allowed to accumulate and are eventually sold. What Macy spends on tires yearly is not known, but comparative estimates show that some of their shoes range between \$8 and \$34 each. Tire mileage is anywhere from 10,000 to 40,000 miles on new tires, says Clinton Brettell, garage superintendent. Retreads give $\frac{3}{4}$ of new tire mileage.

Trucks are replaced at the rate of 50 to 75 units yearly, representing an additional yearly investment of \$60,000 to \$70,000. On this basis the entire fleet of gasoline trucks turns over about once every $5\frac{1}{2}$ years. The electrics, of course, turn over less rapidly.

An interesting note is to the effect that Macy's delivery men wore their way through the drivers' seats in three to six months. A stop was put to this by the use of a sponge type seating material and seats now last about two years. No facts could be obtained on how rapidly drivers wore out the seats of their pants or the soles of their shoes in the act of delivering 50 to 60 thousand packages daily, with package trucks averaging 100 stops daily and carrying from 100 to 700 packages in a load. Macy's investment in this delivery system for trucks and equipment is well over a million dollars.

The Driver

THE Macy driver is a remarkable example of efficiency and reflects accurately the special attention given by Macy to driver selection and training. Drivers are carefully selected on the basis of certain standards established by tests in 1927. These standards for the ideal driver are as follows: (a) Between 25 and 35 years of age; schooling—public school graduate; physical condition—good health, good eye-sight, freedom from special physical restrictions of any movement of arms, legs, hands, feet; ability to lift and carry loads, endurance, etc. Essential abilities are normal color test, fair in accuracy, fair in speed, fair in arithmetic, (TURN TO PAGE 74, PLEASE)

THIS WINTER
WILL BE A

Humdinger!



**USE MCKAY "MULTI-GRIP"
DOUBLE-BAR-REINFORCED
FOR Double Mileage
and Super Safety!**

Repeated road tests *prove* that McKay Multi-Grip Truck Chains give the lowest cost per mile.

**Better Get McKays—They Will
Cut Your Traction Costs...
and Save Delays!**

Weather experts agree—there's a mighty hard winter ahead, with low temperatures and lots of snow and ice. Under such severe conditions (remember last winter?) road delays increase and traction costs mount rapidly—unless you get the EXTRA LONG WEAR McKay Chains give.

McKay Chains save you money three ways. First, they stand up under miles of grueling punishment. Second, they give you maximum safety. Third, the exclusive Klip-Lock Fastener makes them *quick* to put on and take off.

Keep your drivers on schedule this winter . . . cut your traction costs . . . with McKays. Sold by leading jobbers. The McKay Co., McKay Bldg., Pittsburgh, Pa.

MCKAY TRUCK CHAINS

(CONTINUED FROM PAGE 70)

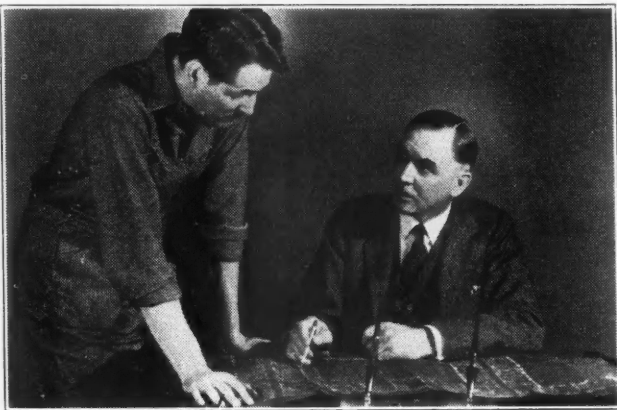
good in driving test. Personalities—active, alert, stable, free from personality disorders, well integrated, good attitude and interest in job. Special—free from day-dreaming, devoted type of personality whose responses are quick and active, pleasant and courteous, interested in routine and details, cooperative, likes and takes responsibilities well, meetable, liking for outdoor work, ability to work without supervision, likes supervisory ability, effective contact, and ability to remain free from accidents and keep down

maintenance costs by avoiding unnecessary wear and tear of equipment.

Such characteristics mark the average Macy driver. Such are the type of men on whom Macy relies for safe and efficient delivery of its merchandise. For a complete story on the Macy driver covering the company methods of testing and selecting and promoting of safety, see *COMMERCIAL CAR JOURNAL* for February, 1935, "Standards for Driver Selection."

The Delivery

WHEN a customer walks into R. H. Macy, makes a purchase and sends it



"...and use 4 inches of Dry-Zero Insulation in all 15 Trucks"

Whenever—or wherever—modern motor truck bodies are planned the builders know that body insulation must be given proper attention. Here is why they so often choose Dry-Zero Insulation.

FIRST—You get the most efficient commercial insulant known. This means you get the most possible insulation protection per dollar. It means you are certain of maximum possible insulation protection.

SECOND—Because of the high insulation efficiency, you save on refrigeration expense. This insulation conserves refrigeration temperatures, keeps them low for long periods. This means a continual saving, every trip, every month, every year as long as your truck operates.

THIRD—This insulation is so light in weight that it adds little to the dead-weight of the truck body. As a result there is a greater margin for payload capacity. With present highway weight restrictions, the lowest possible dead-weight is a necessity.

FOURTH—You are sure of maximum efficiency for the full life of your truck. Because this insulation does not disintegrate, rot or mold, or absorb moisture. Investigations of worn out trucks show that this insulation will outlast the truck itself.

DRY-ZERO
INSULATION
The Most Efficient
Commercial Insulant Known

DRY-ZERO CORPORATION

222 North Bank Drive, Chicago • 687 Broadview Ave., Toronto

to her home, an elaborate routine delivery system is set in motion. A slip for the purchase goes through pneumatic tubes, part of the 70 miles of them, to the cashier's department and then to the order filling department. In the case of small articles carried in the store, the purchased article is immediately transported to the packaging department where it is labeled to show its destination. From the package department it moves, by means of chutes, conveyor, rolling hand truck, etc., to the main transporting room. Here the packages are again sorted into territories, such as New Jersey, Westchester, Long Island, Brooklyn, Staten Island. Belt conveyors, so marked, pass through this sorting room and the packages are thrown on them. The conveyors carry these packages to the loading platform where there are bins for the local packages, or the conveyor carries them to a transfer floor for suburban distribution.

The local packages are then sorted in the order of their delivery and packed in trucks. Packages for the suburban areas are put in hampers and shot down chutes where they are loaded in hampers in roll-off bodies or else they are stacked individually in the roll-off bodies. At the depots the loaded bodies are rolled to a conveyor belt and redistributed by routes much as in the manner described for the local delivery areas. The packages are routed to their proper bins, loaded from the bins into the truck.

AN entry clerk checks each item of merchandise against the driver as that item is stacked in his bin from which he loads his truck. From that point on the driver handles and is responsible for the merchandise.

Perhaps some figures on the delivery of packages would be interesting. These latest figures available in complete form date back several years. Up to that time the highest number of pieces of merchandise ever delivered in one day approximated 180,000. In 1934 approximately 18,000,000 pieces of merchandise were handled for delivery. This figure includes merchandise shipped as well as delivered by truck.

Here is a break-down of the approximate weight of outgoing merchandise handled by Macy's in an average day:

	Lb.
Package cars, store	259,000
Package cars, sub. depots ..	148,000
Bulk, departments	149,000
Bulk, warehouse	160,000
Furniture cars, warehouse ..	405,000
Transfer trucks	100,000

1,221,000

Less 10%

122,100

Approx. wgt. for average day 1,098,900

COMMERCIAL CAR JOURNAL
AUGUST, 1936

BALANCED



IN PACKARD FOUR-FORTY ignition cable no *one* quality is overemphasized at the expense of another. Packard FOUR-FORTY's new secret-formula inorganic-base compound sheath provides equally effective resistance to heat, oil, age, and high voltage rupture. Packard FOUR-FORTY does *not* "shine" in one respect and fall short in another—it withstands *all* the gruelling service that fleet, bus and truck operation can give it. Try Packard FOUR-FORTY on *your* equipment now—see how it cuts fuel and cable replacement costs. Your jobber has FOUR-FORTY. Order from him. Packard Electric Corp., Warren, O.



Packard
REG. U.S. PAT. OFF.
TRADE MARK

THE STANDARD WIRING EQUIPMENT OF THE AUTOMOTIVE INDUSTRY

COMMERCIAL CAR JOURNAL
AUGUST, 1936

First-Aid Drivers

(CONTINUED FROM PAGE 21)

period of practicing methods of bandaging injuries on one another, drivers and helpers were graduated QFADs. (Qualified First-Aid Drivers.)

They were then given complete kits containing bandage, gauze, shears, iodine, mercurochrome, smelling salts, small bottle of alcohol and a booklet on first-aid for just in case. The cost of the entire outfit amounts to about \$2.50.

Here are several examples of first-aid

given by Sears drivers. In one instance a driver arrived on a street just in time to see a boy strike another in the eye with a rock, literally nearly putting out the eye. This driver hurriedly bandaged the eye and rushed the boy to a nearby hospital where the necessary operation was immediately performed, saving the eye. The gratitude of the injured boy's parents was well worth the trouble to Sears, Roebuck.

In another instance, Driver Matthew Hughes brought his truck to a halt beside a crowd surrounding an automobile. Pushing through, he saw persons trying to revive the driver of the

passenger car who was unconscious. Reaching for his kit, Hughes tried to revive the other with smelling salts and failing this, rushed the victim to the hospital. It proved to be a case of carbon monoxide poisoning.

In line with Sears, Roebuck's efforts to create good will by making first-aid men out of their delivery men, other companies are joining the parade distributing first-aid outfits to trucks not now so equipped and instructing all drivers in first-aid methods. The potential value of these efforts is manifold.

WITH the number of trucks on the highways steadily increasing, along with the possibility of the drivers of these trucks being equipped and trained in first-aid, it will not be an uncommon sight to see injured persons stopping the first passing truck for emergency first-aid treatment. Publicity to the effect that drivers for a certain trucking company are trained in emergency first-aid will not only reassure the public as to that driver's ability to give first-aid, but will also keep the name of that company in the public's mind. When Sears, Roebuck decided to equip and train drivers in first-aid, the fact was publicly announced, and in the few instances that drivers were able to offer help, they were received with confidence.

That part of the misguided public which growls and glowers at trucks on the streets and highways may yet have cause to be thankful for the frequent passing of motor trucks. By making this first-aid service available to those in need in addition to the public services which trucks now perform, such as helping motorists who are stuck or who have had a breakdown, trucks establish themselves as the motorist's most valuable highway friend.

The possibility of building up public good will by this means, and of making drivers serve as representatives of the store between the store and the customer, primarily motivated the change by the Philadelphia branch of Sears, Roebuck from a rented delivery service to their own operation whereby the company would have its own trucks and hire and control its own drivers without actually having to maintain the fleet.

The company went into this operation in November, 1935, with 29 trucks of modern design and attractively finished. The trucks were acquired on a mileage basis of operation. This mileage basis of operation covers all variable expenses. Maintenance, however, is taken care of by the Hertz Truck Lease Service. In this respect, drivers are required to turn in reports

(TURN TO PAGE 82, PLEASE)

COMMERCIAL CAR JOURNAL
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Gatke Brake Lining

**GIVES
BETTER SERVICE
•
LONGER LIFE
•
NO FADING
•
NO WEAR
ON DRUMS
•
SAVING IN
MAINTENANCE**

Read This Letter

"SHIP BY TRUCK"

Fortier Transportation Company
CONTRACT HAULING
FRESNO, CALIFORNIA

Gatke Corporation,
226 N. La Salle St.,
Chicago, Ill.

Gentlemen:

We are pleased to advise you that we have been using Gatke brake lining for the past three years on our fleet of trucks and find that it gives us better service with longer life and no fading under extreme heat. There has been no evidence of wear on brake drums during this time. Due to this feature, we have experienced considerable saving in our shop in the brake maintenance department.

Due to the interest you have taken in our organization, we feel it is only fair to advise you of the splendid performance your product has given us.

Yours very truly,

FORTIER TRANSPORTATION COMPANY

By *RA Fortier*

RAF:LD



**HI-POWER
BRAKE BLOCKS
on GUARANTEED
MILEAGE
BASIS**

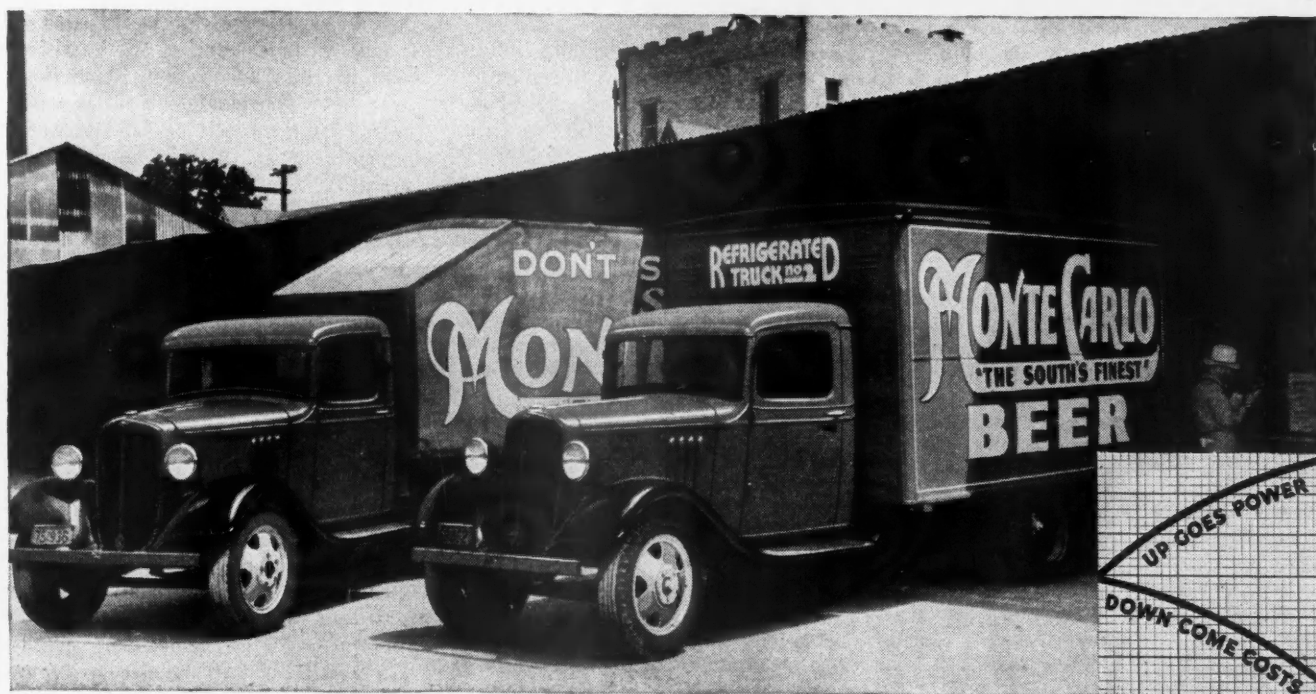
**MAIL THIS
MONEY-SAVING COUPON**

GATKE CORPORATION
226 N. La Salle St., Chicago

Send complete information about BETTER BRAKING afforded by GATKE HI-POWER Brake Blocks and the Guaranteed Mileage basis on which they are sold.

Name

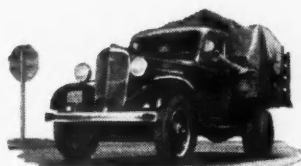
Address



"I am Saving Hundreds of Dollars Every Year," says Chevrolet Truck Fleet Owner



FOR ECONOMICAL TRANSPORTATION



**NEW PERFECTED
HYDRAULIC BRAKES**

always equalized for quick, unswerving, "straight line" stops

**NEW FULL-TRIMMED
DE LUXE CAB**



with clear-vision instrument panel for safe control

SOUTHERN BREWING COMPANY, Houston, Texas, is another truck fleet owner that has learned by experience and comparison of the outstanding advantages and economy offered by Chevrolet trucks. Mr. Carl R. Allen, who has personal supervision of this company's truck equipment, says:

"Approximately 1,000,000 miles of hauling (7,000 pounds per unit on 5 trucks) has convinced me that I am saving hundreds of dollars each year by standardizing on Chevrolet after trying competitive makes on the same hauls, over the same roads.

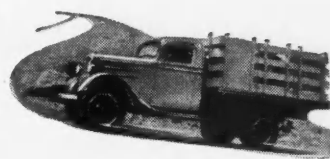
"Chevrolet truck No. 4 completed 110,000 miles of service with only one valve grind job and no other mechanical work except minor adjustments.

"Chevrolet truck No. 3—80,000 miles—with an expenditure of \$25.00 for parts and service.

"I am averaging 12.6 miles per gallon of gas; changing oil every 1,000 miles—and I have never added a quart between drains."

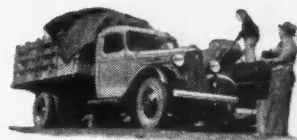
Join the hundreds of fleet owners who are gaining similar results from their Chevrolet trucks—the world's *thriftiest high-powered trucks!* See or phone your Chevrolet dealer for the demonstration that will convince you that *low-priced* Chevrolet trucks lead in power, economy and dependability.

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN



**NEW
HIGH-COMPRESSION
VALVE-IN-HEAD ENGINE**

with increased horsepower, increased torque, greater economy in gas and oil



**FULL-FLOATING REAR
AXLE**

with barrel type wheel bearings on 1½-ton models

GENERAL MOTORS INSTALLMENT PLAN—MONTHLY PAYMENTS TO SUIT YOUR PURSE

CHEVROLET TRUCKS

COMMERCIAL CAR JOURNAL
AUGUST, 1936

(CONTINUED FROM PAGE 78)

daily regarding the condition of the truck and every truck is inspected and serviced nightly. The scheme of maintenance calls for replacement of the entire fleet every four years. Bodies are to be varnished every six months and the entire unit repainted once a year. Trucks are garaged by the leasing company.

THE mileage basis of operation is supplemented by a charge of so much per week, covering purchase of the vehicle, insurance, etc. This plan which

was previously used in Boston and on a much smaller scale in Norfolk, Buffalo and Washington, D. C., by Sears, Roebuck, proved so successful that the company has decided to go into it on a national scale.

Shortly after the inauguration of this new operation by Sears, Roebuck in November, 1935, a complete safety campaign was instigated. Plans call for the holding of periodic meetings when various complaints are discussed, accidents reviewed and preventive and corrective methods determined. A Board of Inquiry has been set up, con-

sisting of a representative of the company, a representative of the drivers and the insurance agent. This Board investigates accidents and sits in a body to hear the driver's case. A driver is pronounced at fault if he caused or contributed to an accident. An accident is termed as such in the case where there is either property or liability damages or injuries. In addition to the Board of Inquiry, safety bulletins of current interest on safety topics are distributed.

Drivers are offered two incentives to drive safely. The first and perhaps the most vital is the award to its safety drivers of a sum equivalent to approximately five per cent of the driver's salary every month in which he has had no accident. It is expected that this substantial bonus will have a telling effect. The second incentive is the awarding of medals to drivers for twelve consecutive no-accident months. Safety drivers will receive a bronze medal for the first year of safe driving, a silver medal for two years of safe driving and a gold medal after the third consecutive year of safe driving. Every year thereafter in which a driver does not have an accident, he will receive an additional gold medal. Drivers will also get a card stating that he is an honor driver. In all cases, any contact between the driver's truck and any other vehicle must be reported regardless of how slight that contact may have been.

NOT to leave anything undone in making drivers representative of the store, Sears, Roebuck equipped them with complete uniforms. The winter drivers' uniforms consist of a tan suede jacket, blue corduroy breeches, dark blue cap, tan shirt, black bow-tie, black puttees, black shoes. The uniform is supplied by the company, except for the shoes, shirt and tie which the driver must furnish. Sears' insignias appear on the cap and on the coat. These uniforms are attractive and give drivers an orderly appearance.

Most of the drivers and helpers in this new Sears, Roebuck operation were taken over from the delivery service which formerly delivered merchandise for the company. They were carefully selected by the warehouse manager, and then put in charge of H. Folkman, delivery superintendent. Drivers selected are all married and have families. They were chosen for their appearance as well as their ability and only those with the best safety records were selected.

Clarke Promoted

Thomas H. Clarke has been named manager of battery sales for the B. F. Goodrich Co.

COMMERCIAL CAR JOURNAL
AUGUST, 1936

At last

THE ROBINSON AUTOVAC COUPLER

. . . a vacuum hose coupling with a built in automatic shut off valve.

Connected . . . *Autovac* is fully open!

Disconnected . . . *Autovac* is tightly closed!

No valve to turn off . . . nothing left to chance. Saves time and money. *Autovac* protects hose lines and mechanism from water and dirt . . . it's automatically sealed when not in use.

Autovac's patented locking device in the female coupling is stronger . . . it holds the male coupling solidly under any condition.

Autovac couplings form a longer lasting leak proof connection . . . the automatic take-up seals tightly long after ordinary couplings fail.

LIST PRICES

Male Unit . . . 3/4" Hose	\$4.50
Male Unit . . . 1/2" Hose	4.50
Female Unit . . . 1/2" Pipe Thread . .	2.80

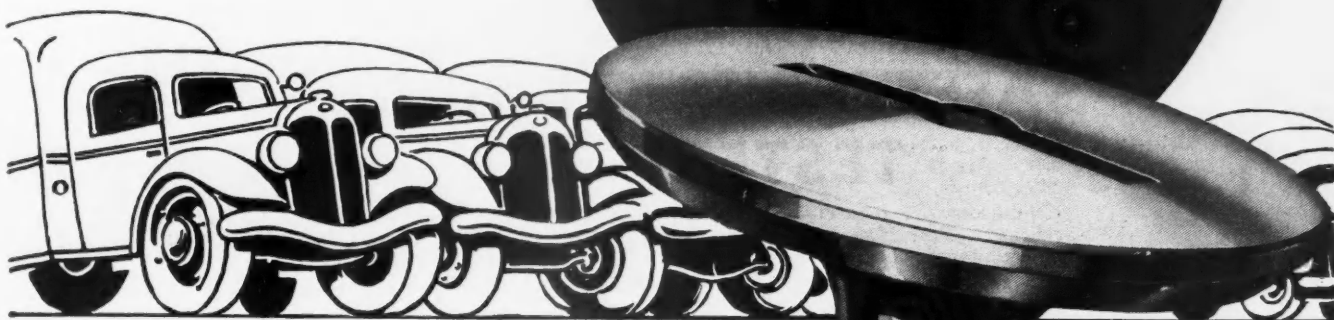
**RELIABLE MACHINE SCREW CO.,
NEWARK, NEW JERSEY**



Make this

**TOLEDO
VALVE**

—test



Install a set of Toledo Super-Forged *Guaranteed* Valves in the most troublesome motor in your fleet. Toledo Valves welcome such a tough test; it gives them a real chance to prove their superiority . . . Increasing numbers of fleet owners know that Toledo Valves give better performance and reduce maintenance costs. Equip your fleet with these better valves. Your Toledo jobber carries a complete stock for your convenience and service.

LOOK FOR THE
NAME
ON EVERY
VALVE

★ GUARANTEE

Toledo "Type S" Super-Forged Valves are guaranteed. Your Jobber will give you, without charge of any kind, a new valve in exchange for any Toledo "Type S" Super-Forged Valve which proves defective in service.

THE TOLEDO STEEL PRODUCTS COMPANY, TOLEDO, OHIO, U. S. A.
New York, 17 W. 60th Street • Boston, 702 Beacon Street • Cleveland,
2209 Ashland Road • Chicago, 1225 South Wabash Avenue • Detroit, 443 East
Fort Street • Atlanta, 279 Ivy Street, N. E. • Dallas, 2805 Commerce Street
Kansas City, 14th and Oak Streets • St. Louis, 3150 Locust Blvd. • Los Angeles,
1341 South Hope Street • San Francisco, 528 Larkin St. • Portland, 408 N. W.
12th Avenue • In Canada: The Toledo Steel Products Company, Ltd., 14
Breadalbane Street, Toronto

TOLEDO

COMMERCIAL CAR JOURNAL
AUGUST, 1936



(CONTINUED FROM PAGE 31)

New Walker Jacks

WALKER MFG. CO., Racine, Wis., announces three new products for use in repair shops:

Lift-A-Car for light-car service that has

been designed especially for use in motorcycle side-cars or service trucks. It is a lightweight, mechanical jack, known as No. 714. Power raise is from 3½ in. to 18¾ in. Rated capacity is 1-ton. No. 714 is priced at \$16.75.

Roll-A-Car for light and medium weight car service is a lightweight mechanical jack. This jack is known as No. 743. The handle operates in any one of three positions. The jack has a power raise up to 16¾ in. and goes down to 3¾ in. Rated capacity 2-tons. Sells for \$30.

The senior Roll-A-Car for all car and all but heavy truck service. Power raise is from 3¾ in. to 24½ in. This hydraulic, No. 785, has a turning knob at the top of

the handle that performs two functions: it regulates the speed of lowering and also pulls out and locks the handle in any one of three operating positions. The jack has dual pumps—a speed pump and power pump. The rated capacity is 3¾-tons and an automatic safety valve protects jack load and operator. It opens when the jack is overloaded or handle is operated after jack has reached its full height.

Priced to sell for \$55.00. Prices on all three products are slightly higher west of Denver and in Canada.

Bonney Socket Set

KNOWN as the No. D3 Socket Set, the Bonney Forge and Tool Works, Allentown, Pa., has just placed on the market a set consisting of 16 sockets with double-hexagon openings ranging from 7/16 in. to 1¼ in. for ½ in. square drive. Supplied with these sockets is a hinge handle 15 in. long, with cross handle.

The entire set is made of Bonney "CV"

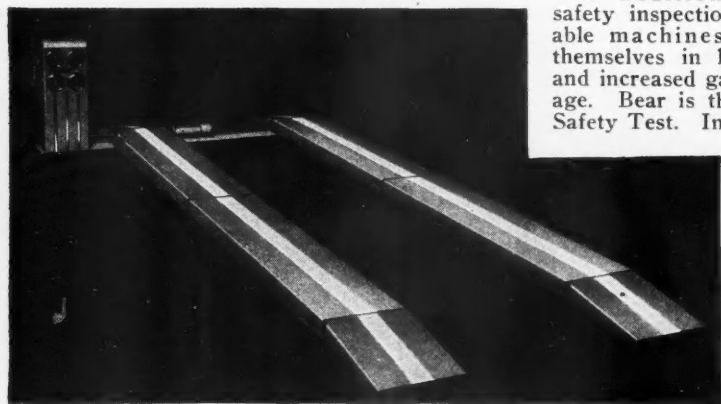


WILL DAMMANN
Pres. Bear Mfg. Co.

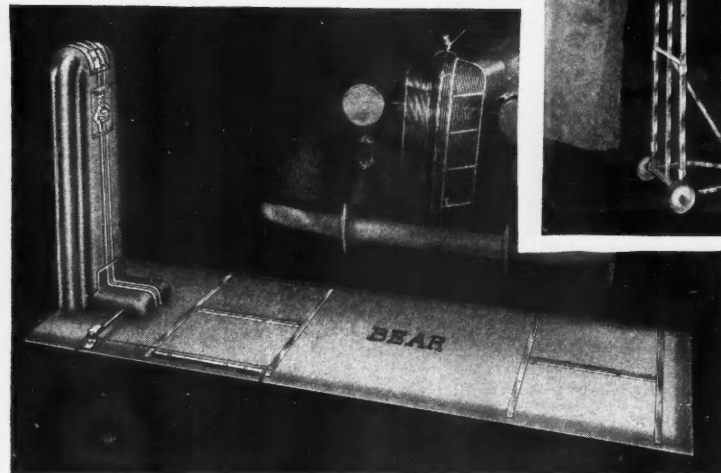
New, Fast, Accurate SAFETY INSPECTION TESTERS

These new Bear Safety Testers are amazingly fast and accurate. Now fleet owners can obtain quick, periodic inspections of wheel alignment, brakes and lights. Each of these testers can be used separately or in combination for complete safety checking.

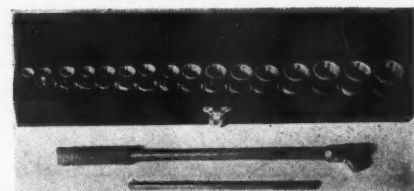
In addition to providing safety inspections, these valuable machines soon pay for themselves in longer tire life and increased gas and oil mileage. Bear is the Best for the Safety Test. Install Bear now.



Above—Hydraulic Brake Tester—A quick drive-on and hook-up machine that inspects and assures correct adjustments. Indicates brake drag, loose brakes, glazed linings and all other brake troubles. At right—Bear Headlight Tester—Accurately shows exact center of beam. Quick adjustments for fast testing. Portable. Below—Tire Scuff Detector—Discovers excessive tire wear, uncovers all misalignment trouble and shows up bent rear axle housings. Indicates tire wear in percentages. Automatically makes test as vehicle is driven over. Portable.



Write
for
Details.
Bear Mfg. Co.
Rock Island, Ill.



Chrome-Vanadium Steel, to withstand the most severe use. Each piece is chrome-plated. All pieces are packed in a substantial metal case.

Brake Wedge Bolts

FLOATING brake wedge bolts, which insure increased positive brake action and at the same time stop chatter, are a new automotive replacement product announced by The L. F. Kreger Mfg. Co., 550 West 35th Street, Chicago.

These bolts may replace worn out ones on all 1928 to 1934 Ford cars and are the same as those used as original equipment on 1935 and 1936 models. They equalize the brake action of the front brake shoes. No. 207 is for passenger cars, while No. 208 takes care of the requirements of Ford trucks.

Wheel Alignment Manual

A COMPLETE and authoritative manual on wheel alignment is being offered by the Weaver Mfg. Co., for use by shopmen.

Two inspection routines are given—one for a quick check that locates the trouble in 90 per cent of the cases; and a complete check that takes care of the other 10 per cent that have unusual or hard-to-discover sources of hard steering or abusive tire wear.

In a chapter devoted to "Correcting the Steering" instructions are given for locating and correcting binding or looseness in the steering, as well as for adjusting steering angles. How to adjust spoke position, steering worm end play, backlash, and cross shaft end play are shown in detail.

The new Weaver Wheel Alignment Manual consists of 118 pp., profusely illustrated, and will be sold for \$2. Address the company, Springfield, Ill.

(TURN TO PAGE 94, PLEASE)

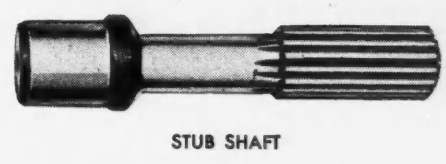
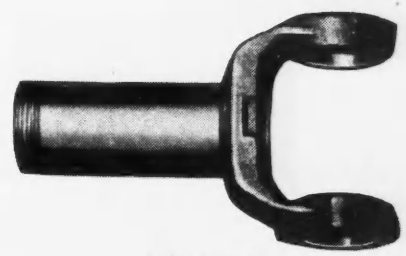
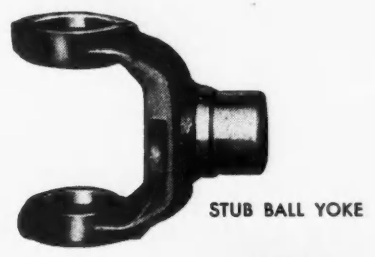
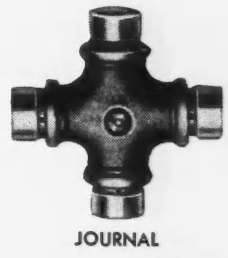
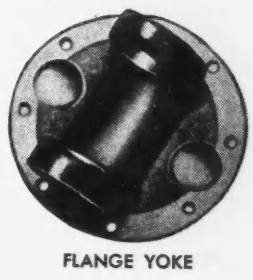
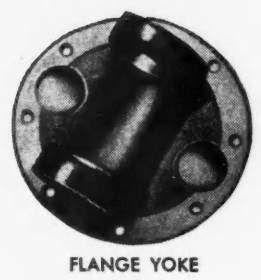
For better fleet performance

REPLACE WITH GENUINE SPICER PARTS



Spicer Needle Bearing Change Over Assemblies, for trucks, bus and passenger car use. Exclusive licensees under Goetz U.S. Patent RE 18080.

● For maximum efficiency and economy in modern high speed truck, bus and passenger car operation, most leading fleet owners are insisting on **Spicer** Needle Bearing Replacement Assemblies. These are offered in all sizes. Service and parts available everywhere. Remember, genuine **Spicer** parts cost no more than unknown or unproven parts—in fact, in the long run they cost you less. Consult your nearest **Spicer** Authorized Distributor, or write us for Bulletin No. 83.



Spicer Manufacturing Corp. • Toledo • Ohio

BROWN-LIPE
CLUTCHES and
TRANSMISSIONS

SALISBURY
FRONT and REAR
AXLES

SPICER
UNIVERSAL
JOINTS

PARISH
FRAMES
READING, PA.

New Products On Parade

(CONTINUED FROM PAGE 86)

Electric Heating Pliers

A PORTABLE electric tool has been added to the line of maintenance equipment made by the Ideal Commutator Dresser Co., 3051 Park Avenue, Sycamore, Ill. This heating tool called Thermo-Grip pliers, takes the place of an open-flame blow torch or burner. When the wire connections are plugged into any 110 volt A.C. lighting circuit, current passes through the transformer and rapidly heats the jaws to a white-hot temperature. These pliers have

renewable carbon jaws, insulated fibre handles and a hi-lo heat control switch. Current is only consumed when pliers are being used.

The entire unit is portable, weighing 14 pounds complete, (plier and cord, which is held by operator, only 5 pounds) is safe, shock-proof and sturdily built. The cord connection is 10 feet long. Two six-foot lengths of heavy duty cable connect the transformer and pliers, allowing plenty of freedom for worker's movements.

Tire Scuff Detector

THE Bear tire scuff detector is designed to meet the demand for fast and reliable

wheel and steering alignment inspection. All that is required is to drive the vehicle on the runways, both front and rear wheels are tested as they come in contact with sensitive detector blades. It registers the slightest scuff or drag caused by wheel misalignment. An automatic trip device returns the indicator to zero for the next reading. It shows in fractions exact condition of alignment and indicates tire wear in percentages. Bear Mfg. Co., Rock Island, Ill.

Hydraulic Brake Tester

The Bear Mfg. Co. introduces a new model hydraulic brake tester. Designed to register under actual road conditions, this new unit combines in one, means for making either quick drive-on tests or hook-up tests for adjustment work. For making quick inspection tests, a vehicle is driven on the runways and brakes applied, which instantly registers their condition on the calibrated dials through the medium of movable platforms.

Tests can also be made with a special cable attachment to insure accurate adjustment. By this method test may be held for any length of time with brakes applied. Runways are only 4½ in. from floor. Bear Mfg. Co., Rock Island, Ill.

AC Oil Filter

A NEW type oil filter that removes sludge, dirt and other foreign matter from oil is the latest development of engineers of the AC Spark Plug division of General Motors. The new device is designed for use on buses, trucks and tractors, while development of a nearly similar device for automobiles is practically completed.

The filtering element used in the new oil filter is composed of igneonite, a porous rocky substance, which both filters and clarifies the oil.

Protector Plate

A PROTECTOR plate designed to fit on the inner edge of the block to protect the manifold ports and the sharp edge of the block while removing carbon stuck valve assemblies from the Ford V-8 motor, has been announced by Sunnen Products Co., St. Louis, Mo. The protector plate and valve lifter will be sold as a combination for a net price of \$2.70.

Zecol Scum Remover

ZECOL, INC., Milwaukee, Wis., has announced a new product, H. D. Scum Remover. It is claimed that this new product cleans and polishes in one operation, removing heavy road film and oxidation from automobiles. The manufacturer claims that it does not contain harmful abrasives or acid, and is not injurious to lacquers or enamels.

Valve Fishing Tool

THE Schrader valve fishing tool has improved features over the old type. In addition to making it easier to "line-up" the valve stem in the valve hole, when mounting tires, you can inflate the tire through the special cap. Pulling the hinged saddle to one side anchors the valve so that application of the chuck will not force it back through the wheel hole.

(TURN TO PAGE 107, PLEASE)



"WHAT we want is an air cleaner that keeps itself clean," truck and tractor builders kept telling Arthur A. Bull, famous designer of automotive equipment. So Mr. Bull invented and produced the Handy Perfection Air Cleaner, only oil bath Air Cleaner in the world that **CLEANS ITSELF** as it cleans the air.

This epoch-marking device catches and holds all dust carried by your motor's intake air—in severe conditions up to a half-pound a day. It has saved many a motor from absolute ruin. All this without need for messy cleaning, soaking or brushing!

Just dump the dirt, replace the oil and enjoy the results in far longer motor life and trouble freedom.

Call your nearby Handy Distributor or write direct to us for full information.

HANDY GOVERNOR CORPN.
Detroit

(World's largest builders of Air Cleaners,
Governors and Oil Conditioners)

TESTED!

Its air intake carried on a trailer 40 feet behind and right in the center of its following dust cloud, an automobile collected nine ounces of dirt in its Handy Perfection Air Cleaner, in its Handy Perfection Air Cleaner, during only 150 miles through California's Imperial Valley.

HANDY (Perfection Oil Wash) **AIRCLEANER**

New Products On Parade

(CONTINUED FROM PAGE 94)

Everready Lube-car

EVERREADY lube-car is a portable power gun that pumps all types of lubricants. The Rogers Products Co., Jersey City, N. J., its manufacturers, have converted a portable, high-pressure, air-operated chassis lubricator into a carrier for all guns and fittings required in specialized lubrication. The important feature is that the smaller specialized guns are pumped by the large chassis gun without any mixture of lubricants. Either the fiber gun, or the fluid gun, is attached to the end of the 7-ft. chassis grease hose.

Further standard equipment on the lube-car is one water pump gun and one suction gun, both hand operated, and all necessary fittings and adaptors. The lube-car tank holds the contents of a 25-lb. drum of chassis grease. List price, complete, \$149.50.

Power Brake Hook-Up

VACUUM Power Equipment Co., manufacturer of VEL-VAC power brakes, offers a power unit which makes it unnecessary to replace the barrel type compensator with one of the box type in order to get the booster unit in place.

Sequence of operation is simple. When the pedal is depressed slightly the valve opens. This causes the power cylinder to push open the lever which in turn exerts pressure upon the hydraulic plunger. The line pressure in the hydraulic system is "boosted" from two to three times over what is possible otherwise. The power cylinder does the work, and the driver's foot merely guides the valve opening.

CM Puller

THE Chisholm-Moore Hoist Corp., Tona-wanda, N. Y., has introduced the "CM" puller, a general utility tool for lifting or pulling vertically, horizontally or at any angle. Capacities are $\frac{3}{4}$ -ton and $1\frac{1}{2}$ -ton.

An efficient gear reduction in both capacities provides for a minimum amount of effort to operate the ratchet handle—43 lb. to pull $\frac{3}{4}$ -ton. Light weight greatly facilitates handling. The $\frac{3}{4}$ -ton size weighs 17 lb. Handle is collapsible for tool box storage. Operation is controlled by two buttons which also permit quick adjustment of chain. Mechanism and automatic friction brake are fully enclosed with no exposed bearings or springs, and are packed in grease with no further lubrication required.

Dardelet Screw Thread

THE Dardelet self-locking screw thread is designed to provide threaded fastenings which will remain tight under all service conditions without lock washers, jam nuts, cotter pins or other auxiliary locking devices. It is adapted to bolts and nuts, studs, screws, etc. Locking surfaces of the Dardelet thread are the tapered faces at the root

FIRST IN THE FIELD!



MODEL
2.95 A

2 TON

LIGHT TRUCK
Special

\$4¹⁵
NET TO
DEALER

Sensational new
**HEIN-WERNER
HYDRAULIC
JACK**
for
**FORD
CHEVROLET**

and other light trucks

This ONE new model Hein-Werner Hydraulic Jack will handle *all* light trucks.

Practically none of the trucks of 2 tons or under being produced, or already on the road, have a hydraulic jack as original equipment—so a great need exists for this jack that is *built right and priced right.*

Model 2.95A is tested at $1\frac{1}{2}$ times its rated capacity of 2 tons. Has 7" lift to total height of $16\frac{1}{2}$ " . . . List Price \$5.95 . . . Dealer Net Price \$4.15. (West Coast List Price \$6.45, Dealer Price \$4.55.)

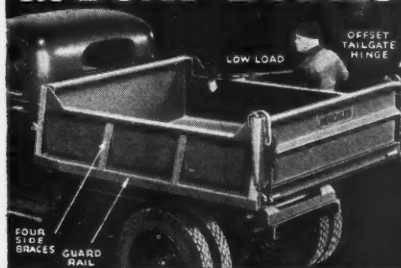
Ask for details on this new jack as well as on our 3, 5, 7, 12 and 20 ton models.

HEIN-WERNER MOTOR PARTS CORP.
WAUKESHA, WISCONSIN

FEW MODELS ENGINEERED TO DO THE WORK OF MANY
HEIN-WERNER
hydraulic JACKS



HERCULES OFFERS MORE IN DUMP BODIES



No matter what your customer requirements are you can fill them better and easier with Hercules Steel Dump Bodies and Tubeless Hydraulic Hoists.

Hercules offers a full line of bodies—all types and all sizes and several models of powerful tubeless Hydraulic Hoists.

Any user will tell you that "Hercules Dumps are better."

Distributors Everywhere
WRITE FOR NEW ILLUSTRATED LITERATURE

HERCULES STEEL PRODUCTS CO.
GALION, OHIO, U. S. A.

ALSO HERCULES SPLIT DRIVE POWER TAKE-OFFS

DITZLER

AUTOMOTIVE FINISHES

PYROXYLIN LACQUERS
SYNTHETIC ENAMELS

Ask your jobber about the new
POLYCHROMATIC ENAMEL.

DITZLER COLOR COMPANY

DETROIT MICHIGAN
Standard in the automotive industry
since 1902

EXTRA PROFIT FOR YOU!

Garages everywhere are using MAGNUSOL—the new Magnus Motor Block and Chassis Cleaner to make extra profits.



MAGNUSOL makes oils and greases quickly soluble in water. Its use makes motor and chassis cleaning a simple and fast operation.

Write today for 48-page "AUTOMOTIVE CLEANING HANDBOOK" which gives the whole story.

Magnus Chemical Co., Inc.
38 South Ave.
Garwood, N. J.

THE COMPLETE LINE
THAT COMPLETELY SATISFIES



THE FITZGERALD MFG. CO., TORRINGTON, CONN.

**FITZGERALD
GASKETS**

of the bolt thread and at the crest of the nut thread. When the nut is seated against a resisting surface and can no longer travel along the bolt, a turn of the wrench forces the tapered face of the nut thread across the corresponding tapered face of the bolt thread with a wedging action until the tapered sides meet, thus locking the bolt and nut.

Airseal Tube

THE Royal Master Airseal, a new tube which is said to hold air two and a half times longer than the ordinary tube, is announced by the United States Rubber Products, Inc. The new tube is made 50 per cent heavier on the rim side to eliminate tube pinching and rim chafing. It is sealed tight by a special process known as Airseal applied to the inside of the tube.

Thor Bench Grinder

A NEW 6-in. bench grinder has been introduced by the Independent Pneumatic Tool Co., 600 West Jackson Boulevard, Chicago. This newest addition to the THOR line is particularly fitted for general grinding, polishing, buffing and wire brush work in garages, etc. Ball-bearing construction throughout. Completely enclosed motor. Adjustable tool rests. Furnished for a. c. or d. c. Weight, 35¼ lb.

U. S. L. Battery

BY a new patented construction, cell connectors are eliminated and cells are direct-connected through partitions inside the case. This makes possible considerably shorter current path between cells with resulting less voltage drop between cells. It is claimed that this feature results in higher voltage being delivered to the starting motor, which means quicker starting and longer battery life. Each cell has 17 plates, 172 amp. at 20-minute rate, 157 amp. hr. at 20-hour rate, 120 amp. hr. at 6-hour rate. Overall dimensions are: length 20½ in., width 11½ in., height 10 9/16 in. Manufactured by U. S. L. Battery Corp., Niagara Falls, N. Y.

Bell Housing Support

AN improved bell housing support for Chevrolet cars and trucks is offered by the L. F. Kreger Mfg. Co., 550 West 35th Street, Chicago.

The Kreger bell housing support, when installed, supplies a uniform spring tension on the drive shaft, correcting wear and eliminating vibration and rattling, as well as further wear. It is easy to install and saves costly repairs. Chevrolet trucks, 1925-1936, use the No. 320-T bell housing.

Safety Flare-Lite

USALITE "Red-Head" Safety Flare-Lite has a powerful white beam that lights up the dark spots—a red flare that protects—signals "danger" to oncoming cars and trucks. This warning light provides features found in no other flashlight. A new all-position bracket-hanger allows the case to be set down on the road or hung up, and enables light rays to be directed from any angle. When working on a disabled truck, the hands are always free. The USALITE "Red-Head" retails for \$1.25 complete with two Lok-Top Batteries. United States Electric Mfg. Co., 222 W. 14th Street, N. Y. C.

"Supervised Transportation"



1st

and the last word in governors

Write for complete information—there is a MONARCH distributor in your area.

MONARCH GOVERNOR CO., DETROIT

DEARBORN LINE

CAB-OVER-ENGINE FOR FORD
TRUCKS

MORE ROOM FOR PAYLOAD

Dearborn Line Cab-Over-Engine Conversions give you a whole of a lot of room for payload and more profits! Moving the cab over the engine increases the payload space of your Ford Truck by 30% to 50%. You have the payload space of a large van and retain the fuel economy and maneuverability of a small truck! See your nearest Ford Dealer or write us direct.

TRANSPORTATION ENGINEERS, Inc.
P. O. BOX 116 HIGHLAND PARK
DETROIT, MICHIGAN



—the trucks that are
"BUILT TO MEET
A CONDITION"

THE **HUG** COMPANY
Highland • Illinois

ALCO

FOUR WHEEL DRIVE

Converts your Ford or Chevrolet truck into a RUGGED, POWERFUL FOUR WHEEL DRIVE able to do the job with ease where much heavier trucks fail, and at a fraction of the cost.

Write

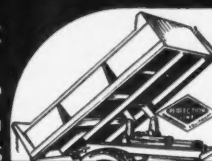
ALMA MANUFACTURING CO.
ALMA, MICHIGAN

STANDARD OR SPECIAL PURPOSE DUMP BODIES

OVERSIZE
HYDRAULIC
HOISTS

WRITE FOR BULLETIN
AND PRICES

THE PERFECTION
STEEL BODY CO.
GALION, OHIO



The BURCH BALANCED POWER HOIST



Balanced power for raising or lowering—automatic locking, any position—one moving part—no gears—no oil lines—no heating or foaming of oil. Plain and Braced Side Bodies—1½ and 2 Yard capacities.

FAST! POWERFUL!

Write for Literature

THE BURCH CORP.
Dept. M—CRESTLINE, OHIO

IMPORTANT MONEY

is being saved by fleet operation through the use of

PUROLATOR OIL FILTERS

We invite your inquiries . . .

MOTOR IMPROVEMENTS, INC.
NEWARK, NEW JERSEY

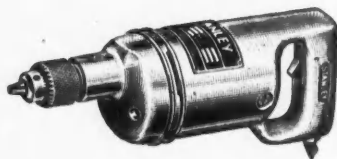
FREE!

New Hoof Governor Sales Manual, just off the press. 64 pages! Packed with facts, charts, graphs and statistics . . . all arranged in easy, quick, ready reference form. An invaluable guide for any person who buys, sells or specifies governors for truck, passenger car, bus, tractor and industrial engines. The manual is free. Send for your copy at once.

HOOF PRODUCTS CO.
162 No. Franklin St., Chicago, Ill.

"Victor" Drill

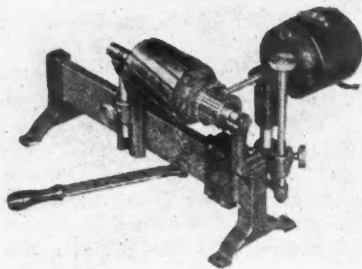
THE Stanley Rule & Level Plant, New Britain, Conn., has announced a new Electric drill, "Victor" No. 114, to sell for \$19.50. It is light in weight and measures 12 in. in length. It is described as having a capacity up to ¼ in. in steel, and has a



Universal motor, operating on either D.C. or A.C. current, 60 cycles or less. The motor housing and handle are cast in one piece from a strong aluminum alloy, and the drill is said to operate at a load speed of 1400 r.p.m.

Undercutter Machine

A new machine for mica undercutting of starter and generator commutators has recently been announced by Frank N. Wood Co., Milwaukee, Wis., makers of TRUCUT equipment. It is claimed that this new Undercutter machine will handle centered and uncentered armatures, in sizes from



¾ to 4¾ in. in diameter, up to 1¾ in. long. Will handle any length automotive armature with core diameter up to 5½ in. Positive lateral travel of undercutter is provided by means of a long hand lever. A vertical adjusting screw regulates depth of cut. Furnished with 3 circular saws and direct drive motor.

Keystone Reamer

WITH the addition of this new machine to the Keystone line, the Keystone Reamer & Tool Co., Millersburg, Pa., offers a new method of finishing piston pin bearings, connecting rod bushings, king bolt bushings, etc.

Keystone's machine is over-powered with a heavy-duty 1/3 hp. motor, 60 rycle, single phase, 110V. The motor is so arranged that it can be easily detached from the machine and put to other uses around the shop.

The reamer and burnisher shaft operate at the speed of 60 r.p.m. The hone shaft at 600 r.p.m. Either shaft is operated independently of the other. The machine will handle any and all work up to 1½ in. in diameter. Net price of this reamer is \$80.00.

(TURN TO NEXT PAGE, PLEASE)

FOLLOW THE LEADERS
for they know the way!

Buy AUTOCAR TRUCKS

THE AUTOCAR COMPANY
ARDMORE, PA.
Branches in 50 cities

THUMB-SCREW
ADJUSTMENT
BALANCED
(S-SIDE) PULL
OVER
LAPPING
SEAL



TRADE MARK Noc-OUT HOSE CLAMPS

THE HOSE CLAMP WITH
THE THUMB SCREW

Standard equipment of the automotive industry. Adjustable - one size equals many. Quick tightening, perfect seal. At all Jobbers.

Pat. No. 1,382,813.

WITTEK MFG. CO.
4305 W. 24th Pl., Chicago, U.S.A.

Motor Tune-Up

is a real profit
and business
building ser-
vice.

*Send for free
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CORP.**
2834-56 N. Spring Ave.
St. Louis

Pin Hole Honing is Cheaper and Better than Reaming

● Never a dull tool or blade-marked hole; small investment, nothing to sharpen; no guess-work or inaccurate fits. Low cost replacement Abrasives; Micrometer Adjustment. Makes ANY mechanic an expert pin fitter. Ask your Jobber today for Standard or Heavy Duty Pin Hone Set you need.

3-TOOL
SET
\$24.00

**HALL
PISTON PIN HONE**

DeVilbiss

Spray-Painting Equipment—Spray Booths—Canopy Exhaust Systems—Exhaust Fans—Air Compressors—Hose and Hose Connections—Oil Guns.

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THE DEVILBISS COMPANY
TOLEDO, OHIO

Distributors or direct sales and service representatives available everywhere.

For Safety Sake equip your

International Trucks
Chevrolet Trucks
Ford Trucks
with

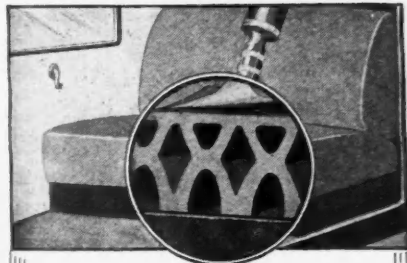
POWER BRAKES WITH REACTIONARY CONTROL

\$18
and up

You can now buy genuine BERG Power Brakes with Reactionary Control at this low price—take advantage of their greater safety. Write at once for full information and discounts.

Power Brakes for Pass. Cars, \$12.50
BERG BROS. MFG. CO.
4520 W. North Ave., CHICAGO

For Comfort and Economy NOTHING EQUALS Black Diamond All-Rubber SEAT CUSHIONS



No other type of cushion provides the complete comfort and total freedom from upkeep expense offered by Black Diamond All-Rubber seat cushions and back rests. Their initial cost is surprisingly reasonable and the first cost is the last, for they'll normally outwear the vehicle in which they are installed. Available for any size or shape of cab. Write today for complete details.

KARPEX MANUFACTURING CO.
1424 East 19th St., Indianapolis, Ind.

TRUCKS CAN'T SKID

when drivers use

LINTERN SANDERS

Send for new Sander Booklet.

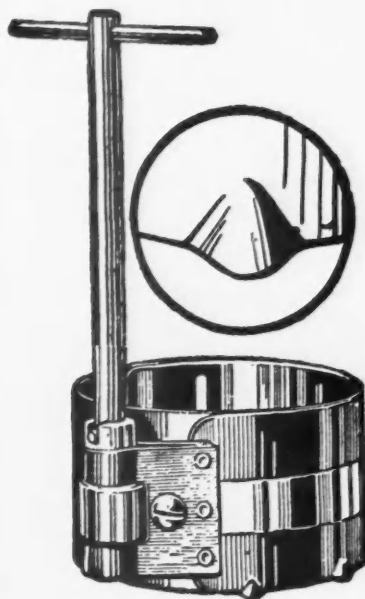
LINTERN CORPORATION

7960 Lorain Ave.
Cleveland, Ohio

Ring Compressor

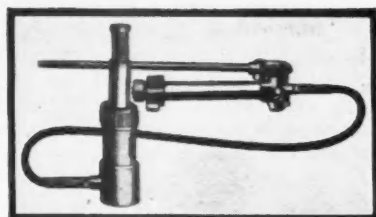
THE National Machine & Tool Co., Jackson, Mich., announces an important alteration in the design of their No. 419 piston ring compressor. To replace the slight flare at the edge of the compressor band, a series of notches or beads is now employed.

When the old style compressor was used, the rings had a tendency to slip into the flare before entering multiple slotted or sectional type piston rings, but the new design eliminates that difficulty and assures a positive, slip-proof grip.

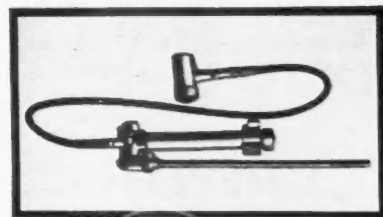


Porto-Power Units

BLACKHAWK MFG. CO., Milwaukee, Wis., has announced two additions to its Porto-Power line, one being a 7-ton short ram for close work on bodies, frames and



fenders, and the other a 20-ton ram unit for heavy duty work on frames, axles, chassis and general shop work. The short ram, Model S-66, has an overall length,



collapsed, of 4½ in., and the plunger travels 2½ in. The 20-ton Porto-Power Unit has a collapsed height of 10¼ in., with a lift of 4½ in.

(TURN TO NEXT PAGE, PLEASE)

DON'T DRIVE BLINDFOLDED

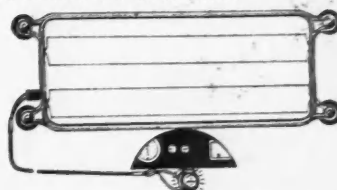
Buy a **CASCO**
Defroster

Sleet storms come at a moment's notice. Frozen windshield, poor vision, delayed trips, danger lurking in the foreground.

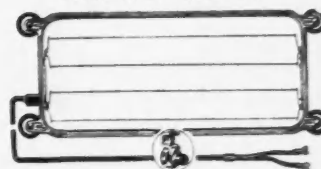
HELP TO PREVENT WINTER ACCIDENTS

Be sure all the cars, trucks or buses of your Fleets are equipped with CASCO Defrosters before they start out for the day—or the trip. Have them keep their Defrosters always ready for instant use, to relieve them of cloudy vision and doubtful, hazardous driving through snow, sleet or freezing rain storms.

Anticipate sleet storms — have your stock of CASCO Defrosters complete. Ask your wholesaler for contract prices.



No. 51 DeLuxe Chrome with illuminated Switch 18"x27"—\$6.00 List



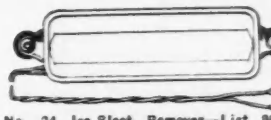
No. 196 Defroster—Chrome includes illuminated Switch 16"x27". List \$5.00



No. 41 Defroster, Chrome. 16"x6". List \$3.50



No. 26 Defroster—Chrome—13"x5½". List \$2.25

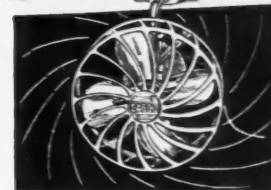


No. 24 Ice-Sleet Remover—List \$0.60

CASCO

AUTO

FANS



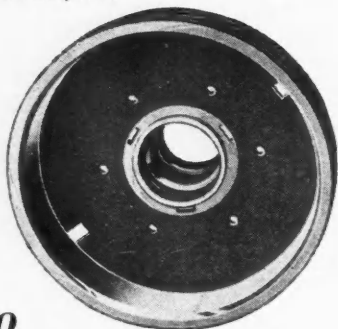
Keep frost off windshield in winter—circulate cool breeze in summer. Attach to steering post or on header board. Has an efficient, dependable motor, sturdy fan and attractively designed guard.

No. 35 DeLuxe Model \$3.75 list
No. 36 Standard Model \$3.50 list
Also Illuminated Switches for Defrosters and Hot Water Heaters. Fender Guides and Cigar Lighters.

ORDER FROM YOUR JOBBER
CASCO PRODUCTS CORP.
Bridgeport, Conn.

"over mountainous routes . . .
... little signs of wear"

"The Cemcalloy Brake Drums after being in service 20,000 miles over mountainous routes are still in excellent condition, showing little signs of wear."
SHIRK'S MOTOR EXPRESS, LANCASTER, PA.



NO Cemcalloy Brake Drum has EVER failed In three years' time not one Christiana-designed Cemcalloy brake drum has ever failed from any cause whatever. Every drum installed is still in daily, useful service. Made from a special alloy iron which is both heat and wear resistant, they give from 4 to 20 times the service of ordinary brake drums.

Write for details and prices, stating makes and models, type of service and quantity.

CHRISTIANA MACHINE CO., Christiana, Pa.

CEMCALLOY

Heavy Duty BRAKE DRUMS

ARMORPLY

• A metal faced plywood panel of high quality for building better panel bodies.

Armorply is the lightest panel of its type available. It is faced with rust resisting galvanneal steel, and has a hard birch back.

Write for samples, prices and full information.



U.S. PLYWOOD

UNITED STATES PLYWOOD CO.

103 Park Avenue New York, N. Y.

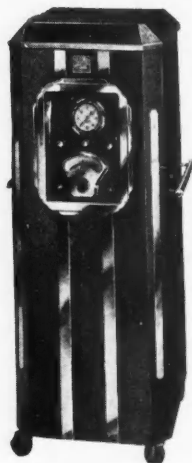
Motor Lubricant Aid

GAS-AID is a product added to regular gasoline to prevent sticking valves. One ounce of Motor-Aid Carbon Remover inserted in the spark plug hole will remove carbon deposits. Lube-Aid, when added to engine oil, increases the film strength and prolongs bearing life. Mechanics-Aid Penetrating Oil is used to loosen up rusty bolts and nuts, free tight door hinge pins, and wherever penetrating oil is required. La-Crosse Motor Aid Corp., LaCrosse, Wis.

Stromberg Analyzer

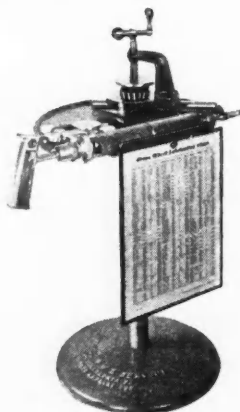
THE Stromberg Motoscope Corp., Chicago, Ill., has announced an exhaust analyzer in which the instrument unit can be removed from the cabinet and placed inside the car, so that tests under actual operating conditions can be made.

The cabinet stands 52 in. high, and is finished in blue and red, with chromium trim. The panel is illuminated. Stromberg claims an entirely new method of analyzing exhaust gases, and a positive and quick indication on the electrical meter is of exclusive Stromberg manufacture.



FWB Lubricator

A NEW pressure lubricating service for front wheel bearings has recently made its appearance. The device is known as Melpak Front Wheel Bearing Lubricator. The bearing is "sealed" in an upright position and the lubricant is forced into the bearing from the inside through an ordinary pressure fitting. Any standard make grease gun may be used.



The Melpak Lubricator consists of the working mechanism mounted on a steel stand with a swivel tray and a complete front wheel lubrication chart. Melpak F.W.B. Service, 11th and Cambria Sts., Philadelphia, Pa.



Write Today for Full Information About

SPONGEX
GRID CONSTRUCTION
Seat Cushions or Fillers

All Sponge Rubber Construction
Cheaper Than Springs • The Most
Comfortable Cushion Ever Made

Address Dept. C

**SPONGE RUBBER
PRODUCTS CO.**
DERBY CONN.

DEPENDABLE!

If you want air-brake dependability, write to the Hays Corporation, Michigan City, Indiana, for literature describing this new husky wiper that slashes through clotted mud or snow with the 100-lb. kick of the air-brake supply behind it.



AIR-PUSH

OSHKOSH

4 Wheel Drive Trucks

A proven product. 1½ to 10 ton capacity. Write for complete information.

OSHKOSH

Motor Trucks, Inc.
Oshkosh, Wis.



SIMPLEX
MOLIUM PISTON RINGS

ROTAWASHER
The Economical Way to Clean Cars, Busses and Trucks



Washing with ordinary methods is costly—try **SPEEDWASHING**

This is the new modern way made possible by the development of the amazing Rotawasher. If you're washing cars—either keeping your own fleet clean, or operating a car washing business—you can't afford to overlook the advantages Rotawasher brings. Write at once for full details.

THE ROTAWASHER CORP.
Dept. CC, 118 E. St. Clair Ave.
CLEVELAND, OHIO

TIMKEN BEARING SERVICE



Use genuine Timken Bearings for replacements. Look for the name "TIMKEN" stamped on every cup and cone.

THE TIMKEN ROLLER BEARING SERVICE & SALES CO., CANTON, O.

McCORD REFRIGERATION
—FUEL SYSTEM
FOR TRUCKS
REFRIGERATION
AT NO COST
—BY THE FUEL
THAT RUNS THE MOTOR

•

McCORD RADIATOR AND MFG. CO.
DETROIT



A New Safety Device for TRUCKS and TRAILERS

The Robinson AUTOMATIC BRAKE LOCK

Holds break-a-ways . . . provides Sure and Safe parking . . . meets all legal requirements . . . easy to install . . . automatic and unfailing. Write for illustrated details and prices.

AMERICAN DIE & TOOL CO.
READING, PENNA.

COMMERCIAL CAR JOURNAL
AUGUST, 1936

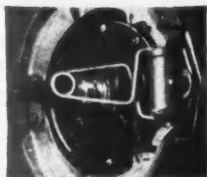
Pen-A-Trate Joint Breaker

PEN-A-TRATE is a fluid which filters quickly into the threads of joints to be broken. Upon coming in contact with the corrosion Pen-A-Trate forms a gas which dissolves the rust into a fine powder and permits the joints to be broken easily.

It is for use on joints, bolts, studs, etc., where corrosion has made removal impossible without breaking. If applied thoroughly Pen-A-Trate will loosen these unyielding joints in two or three minutes.

Curtiss Clamp

AN essential tool to hold the brake wheel cylinder pistons in place and thus eliminate the necessity of bleeding brake lines when brake shoes are removed has been an-



nounced by Curtiss & Smith Mfg. Corp., Pottstown, Pa. It is made of heavy wire, and snaps over the ends of the cylinder.

Colloidal Graphite Booklet

ACHESON COLLOIDS CORP., Port Huron, Mich., is offering a booklet dealing with the subject of lubrication with "dag" colloidal graphite. The booklet deals with the various uses of colloidal graphite and the many advantages claimed for it. For a free copy, just write to the manufacturer.

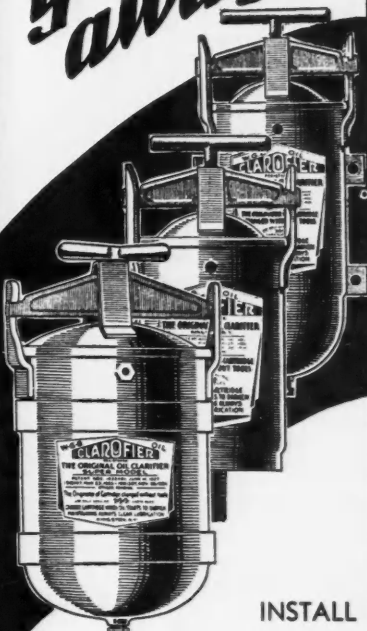
Magnusol Cleaner

MAGNUSOL, a new type of cleaner which makes oils and greases quickly soluble in water, is a new product being marketed by Magnus Chemical Co., Garwood, N. J. Simply dissolved in water, this cleaner may be used safely for cleaning truck bodies, chassis, engines and for all other types of cleaning, the manufacturer claims.

Alumaweld Flux

OF interest to solder and flux users everywhere is the new flux developed by the Alumaweld Co. of America, 2442 South Park Way, Chicago. With Alumaweld flux it is now possible to make high strength permanent repairs on joints of any metals. It makes soldering twice as easy because Alumaweld solder and flux is applied with an ordinary soldering iron or blow torch. The soldering job is done at a low temperature. It works equally well on aluminum, stainless steel, die cast pot metals, cast iron, copper, brass, etc., which makes it easy to join any two different metals if desired. Alumaweld solder has a tensile strength of 12,000 lb. It comes packed in low-priced combination solder and flux kits with scratch cloth and instruction sheet or in Mechanics' Kits and Shop Kits for large users. Alumaweld flux is also obtainable packed in individual containers for use with any type solder.

Don't throw your oil away!



INSTALL
A

W.G.B. OIL CLARIFIER

CARBON, DIRT AND WATER (which cause 75% of motor repair bills) CAN BE REMOVED FROM YOUR OIL SYSTEM.

(Cartridge Changed Without Tools)

Write for information to
102 Greenkill Ave., Kingston, N.Y.

W. G. B. OIL CLARIFIER, INC.

FWD Trucks

are available in sizes ranging in capacities from 1½ to 15 tons.

Write for bulletin

The Four Wheel Drive Auto Co.
Clintonville, Wis.

Kitchener, Ontario, Canada

DON'T CROWD!

USE WILMINGTON VERTICAL AIR COMPRESSORS



Wilmington Verticals don't crowd the floor of a small shop; they take space only 26 inches square. You want low-cost, oil-free air and plenty of it. Wilmington Compressors give it to you for your tires, grease guns, sprays, washers, and other air tools, dependably. Built to run practically continuously for many years without overhaul. Also available in Horizontal types. Send for catalog.

The Auto Compressor Co.

S. MULBERRY ST.
WILMINGTON, OHIO

St. Paul

HYDRAULIC HOISTS & BODIES

There's a St. Paul Hoist to fit every need. Distributors conveniently located in leading distributing centers . . . stocked and ready to make prompt shipments.

St. Paul Hydraulic Hoist Co.
2207 University Ave., Minneapolis, Minn.

ICC Lists Items in Freight Bill

Carriers subject to the Motor Carrier Act are advised by the ICC that they must present freight bills to consignors or consignees containing sufficient information so that they may determine correct rates. Eight items should be shown on the freight bill: (1) point of origin; (2) point of destination; (3) the date of shipment; (4) description of commodities; (5) weight of commodities; (6) route of movement showing who handled the haul and transfer points where shipment passed; (7) rates applicable to service rendered; (8) statement of special charges and points at which rendered.

Bendix Ups Taylor

Neal Taylor Hall has been appointed advertising manager of the Bendix Products Corp. He was formerly assistant advertising manager of the Wurlitzer Co.

Gutterson With Ryerson & Haynes

WILDER GUTTERSON, for the last 10 years sales manager of the automotive division of the American Cable Co., has joined Ryerson & Haynes, Inc., Jackson, Mich., manufacturers of tire covers and jacks. He will have charge of the New York office.

Gasoline Consumption Rises

Daily average gasoline consumption for the month of April, 1936, was 8.99 per cent above that for March, according to the American Petroleum Institute. The April figures omit New Jersey.

Average consumption for the first four months of this year was 7.40 per cent better than for the same period of last year. The April estimate was 1,486,633,000 gal. for 47 states and the District of Columbia.

WAUKESHA

- Comet Diesel
- Hesselman
- Gasoline
- Hy-Powr
- Ricardo Head



ENGINES

VEL-VAC SALES & SERVICE

Available in

193 cities and 48 states—

Canada and Mexico

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ALGOMA

offers the two finest plywoods for truck body construction and upkeep.

ALGOMALOID—the finest of plywoods; selected veneers, resin glue bond; in panels of any desired length, widths up to twelve feet.

ALGOMETL—metal-faced plywood for side, end panels and doors; stronger than steel of equal weight, lighter than any other material of equal strength.

Send for the Algoma "Bag of Samples"

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ALGOMA PLYWOOD & VENEER COMPANY
BUILDERS BUILDING—228 NORTH LA SALLE STREET—CHICAGO, ILL.
FACTORY, ALGOMA, WISCONSIN

Suggest to your Next Customer That He Use the

Commercial Car Journal Standard Cost System. A simple, convenient and inexpensive method of keeping close tabs on trucks and drivers.

It costs only \$9.50 for 500 Driver's Cards, 60 Monthly Summary Sheets, 1 Complete Instruction Book, 1 Binder.

CHILTON COMPANY

Chestnut and 56th Streets

PHILADELPHIA, PA.



No Diesel can be any better
than it's FUEL SYSTEM

*Read
the record*

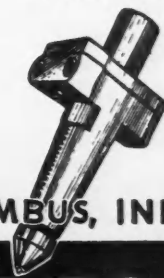
43 ton loads

Over the sand dunes and sun-baked foot-hills of California and Nevada delivering the world's largest concrete pipe sections, a fleet of Cummins-Diesel powered trucks are

building daily performance records.

Operating in temperatures of 120 degrees and more, these trucks work continuously 24 hours a day.

The flexible performance and smooth running dependability of the Cummins is the result of its exclusive fuel distribution and injection system. Ask your nearest Cummins dealer for the new booklet FS-100.



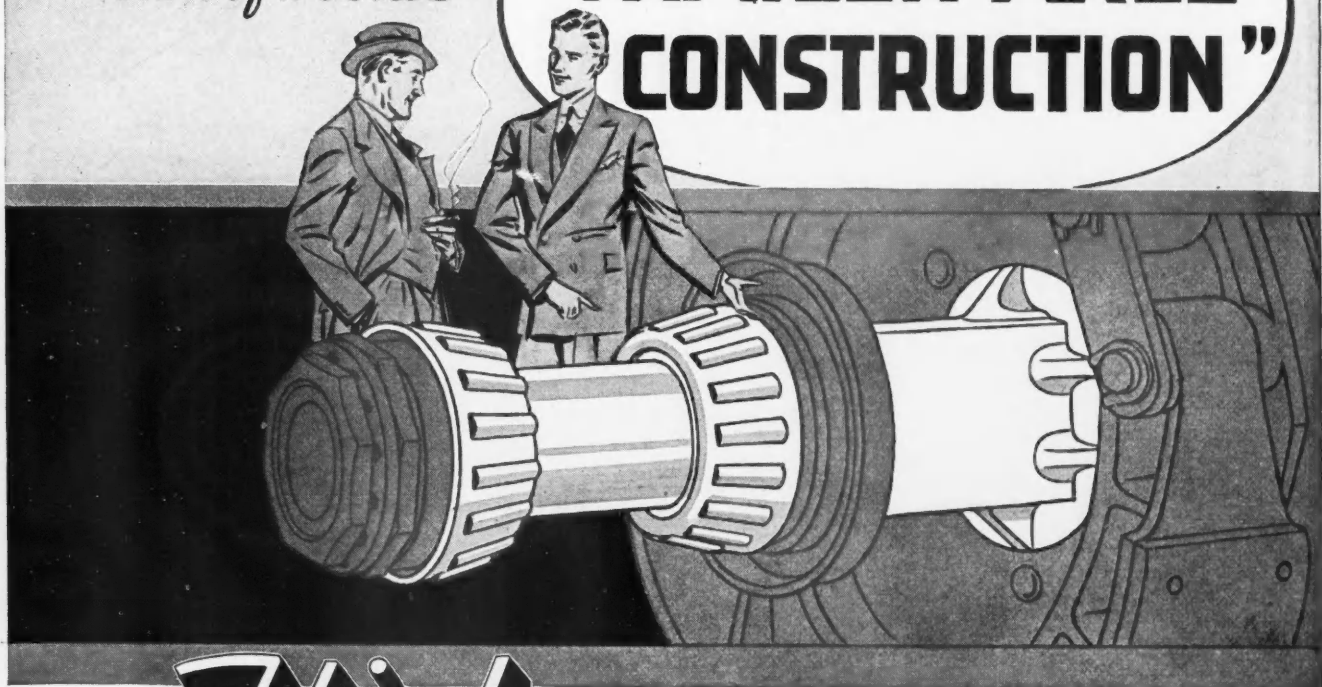
CUMMINS ENGINE COMPANY, 107 WILSON STREET, COLUMBUS, INDIANA

CUMMINS-DIESELS

AUTOMOTIVE • INDUSTRIAL • MARINE

POINTS
to CONSIDER
in SELECTING
a TRAILER
No. 4 of a Series

"Don't
Compromise on
**TRAILER AXLE
CONSTRUCTION**"



Only **Highway** AXLES feature
STRAIGHT SPINDLES with **TWIN TIMKEN BEARINGS**



For APPEARANCE, ECONOMY,
UTILITY and Genuine PRIDE of
OWNERSHIP, **HIGHWAYS** Rank
First.

With equal capacity bearings—under equal capacity tires— integral collars for brake application, and proper camber to provide uniform tire contact, **HIGHWAY** Axles guarantee greater tire mileage and less service interruption than any other type. Their drop-forged, one-piece construction from nickle chrome steel billets of rectangular bed section with oversize spindles are exclusive **HIGHWAY** features.

HIGHWAY TRAILER COMPANY Edgerton
Wisconsin

Branches and Distributors In All Principal Cities

THIRSTY *trucks*

5



MOTOR OIL

COMMERCIAL CAR JOURNAL
AUGUST, 1936



FAVORITE AT THOUSANDS OF TABLES



*... and Hormel trucks
have the finish that's*

SPECIFIED FOR THOUSANDS OF TRUCKS

THE 700 handsome trucks that deliver the famous Hormel foods all over the country are finished 100% with Du Pont Automotive DULUX.

Like fleet owners everywhere, the George A. Hormel Co. not only cuts maintenance costs with Automotive DULUX, but uses this brilliant, durable finish to make each truck a smart-looking, business-building advertisement, wherever it goes.

Automotive DULUX will save *you* money too. Here's how:

1. DULUX IS DURABLE. It keeps its lustre far longer because its tough, elastic film resists the wear and tear of the road . . . does not chip or crack readily . . . is

resistant to all kinds of weather conditions . . . is not easily stained by grease, oil or traffic gases.

2. DULUX IS EASILY CLEANED. Because its protective film actually sheds dirt, DULUX cleans easily and polishes quickly to a high lustre.

3. DULUX CUTS COSTS. When your trucks are finished with DULUX, you'll find trips to the refinishing shop few and far between. And its quick-drying qualities get your truck out of the shop faster.

You can apply Automotive DULUX yourself, with brush or spray. Or if you don't maintain a refinishing shop yourself, an Authorized DUCO-DULUX Refinisher will do the job for you.

Ask any Du Pont representative for complete details about Automotive DULUX. Or write to E. I. du Pont de Nemours & Co., Inc., Finishes Division, Refinish Sales, Wilmington, Delaware.



AUTOMOTIVE DULUX
REG. U.S. PAT. OFF.

COMMERCIAL CAR JOURNAL
AUGUST, 1936

Streamlined

TO MEET EVERY DESIRE AND NEED

No. 785 WALKER

Senior De Luxe Roll-A-Car

Capacity 3¾ Tons—More than enough for all cars and all but heaviest trucks.

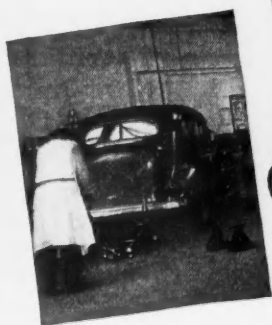
\$55.00

Power Raise up to 24½"—Gives plenty of working clearance under car.

Price Eastern U. S.—Slightly higher west of Denver and in Canada

Knob at top of handle pulls out and locks the handle in any one of three operating positions. It also controls speed of lowering.

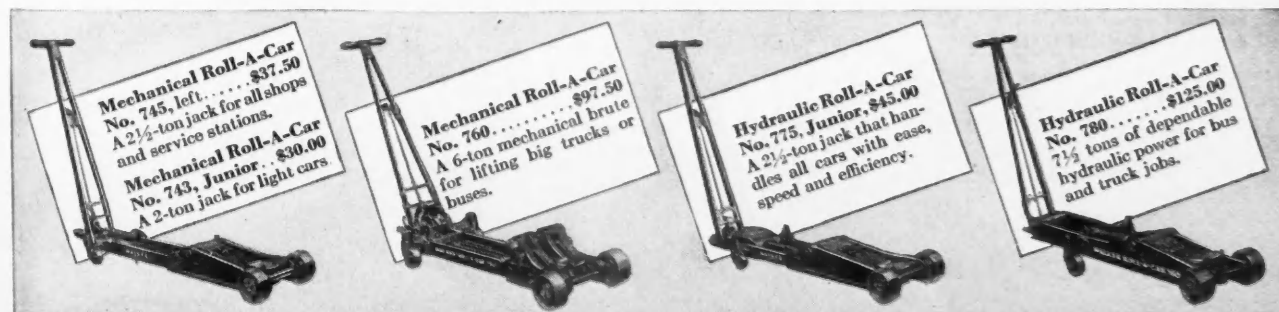
No. 785 is perfectly balanced for quick and easy positioning at any desired lifting point.



Here is the most beautiful Roll-A-Car Walker has ever built—and the most efficient, too. It is streamlined from handle to cap—perfectly balanced, rugged and durable. The chassis is low-to-the-floor and the long handle provides plenty of reach for the farthest lifting point. No. 785 starts at 3¾" and raises to 24½"—giving plenty of working clearance. Perfect balance, rolling ease and smooth action speed up positioning and lifting. The long streamlined tubular handle conceals all operating mechanism . . . adds strength and rigidity. Turning knob at top of the handle regulates lowering speed. It also pulls out and locks the handle in any one of three positions. This permits easy operation of jack without interference.

Prices are Eastern U. S.—Slightly higher west of Denver and in Canada

With No. 785 you have the hydraulic power, lifting range and added convenience to service everything but the heaviest trucks and buses. All the Roll-A-Cars in the complete Walker line answer a definite service need in a price range to suit every desire. See the new No. 785 at your jobber's. Ask about the 5 other Roll-A-Car models. WALKER MANUFACTURING COMPANY, Racine, Wis. Makers also of Walker Electric Lifts and Walker Silencers



Mechanical Roll-A-Car No. 745, left . . . \$37.50

A 2½-ton jack for all shops and service stations.

Mechanical Roll-A-Car No. 743, Junior . . . \$30.00

A 2-ton jack for light cars.

Mechanical Roll-A-Car No. 760 . . . \$97.50

A 6-ton mechanical brute for lifting big trucks or buses.

Hydraulic Roll-A-Car No. 775, Junior . . . \$45.00

A 2½-ton jack that handles all cars with ease, speed and efficiency.

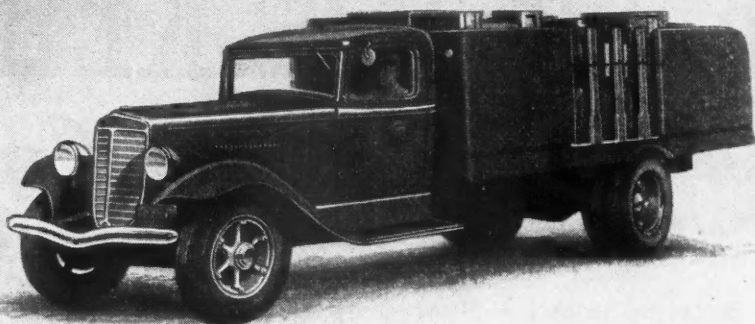
Hydraulic Roll-A-Car No. 780 . . . \$125.00

7½ tons of dependable hydraulic power for bus and truck jobs.

OTHER ROLL-A-CARS IN THE COMPLETE WALKER LINE

Another Example of the *FLEXIBILITY* in the **INTERNATIONAL TRUCK Line**

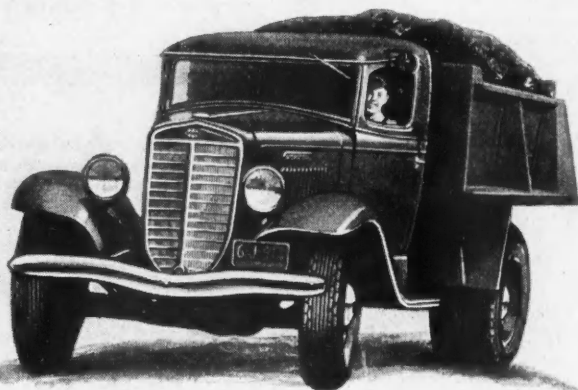
*Here are 3 Popular Models,
basically the same—but VERY DIFFERENT!*



This is International Model C-35, a quality truck of 1½ to 2-ton rating with a max. carrying capacity of 8,350 lb. (cab, body, payload, and equipment)—International-built throughout—the ideal unit for a thousand-and-one hauling requirements.

This is just one example of International Truck *FLEXIBILITY*—the full line offers a wide range of choice to make full efficiency on any job—on *YOUR* particular job, whatever it is. Remember that there are 28 International models—sizes Half-Ton to biggest Six-Wheelers—in 83 wheelbase lengths. Chassis prices from \$415 up, f.o.b. factory. Low time-payment rates apply on all models. International branches and dealers are always at the service of truck users. They will be glad to advise you.

INTERNATIONAL HARVESTER COMPANY
606 S. Michigan Ave. (INCORPORATED) Chicago, Illinois



This is International Model CS-35, same rating and capacity, but engineered throughout for hardier service. This model has an International in-built 2-speed rear axle, doubling the transmission range, providing 8 forward and 2 reverse speeds for dual efficiency on hard highway and in roadless going. Here is *POWER* when you need it—*SPEED* when you want it.

And this is International Model CS-35-T, a perfected six-wheel truck — International - built — with a greatly increased carrying capacity. If you want this trailing-axle six-wheeler without the 2-speed axle, ask for International Model C-35-T.



INTERNATIONAL TRUCKS

THE FACT REMAINS—

Hydraulic Braking

helps sell cars—trucks—buses!

AS long as motor vehicles have to be stopped as well as started, there will be arguments over the best way to stop them. All automotive engineers do not see eye to eye on the subject . . . probably never will.

But the FACT remains—

Hundreds of thousands of experienced owners of motor trucks, buses and automobiles insist upon Hydraulic Brakes because they *like* Hydraulic Brakes. One of the first things they look for, when buying, is Hydraulic Brakes. Once they've made sure the vehicle has Hydraulic Brakes, they're interested.

For more than a dozen years, Hydraulic Braking has been proving its value here in America and all over the world. Year after year its roster of adherents increases. Look at the list for 1936.

HYDRAULIC BRAKE COMPANY
DETROIT, MICHIGAN

LOCKHEED HYDRAULIC

Four BRAKES *Wheel*

OFFICIALLY SERVICED THROUGHOUT THE NATION BY WAGNER ELECTRIC CORPORATION
COMMERCIAL CAR JOURNAL
AUGUST, 1936

4 *new* Exide

with **MIPOR** and **SLOTTED RUBBER**



What a combination! Mipor, the new latex-base separator, withstands the severe overheating, which accompanies long day-time runs — resists vibration wear yet possesses exceptional conductivity — Slotted Rubber plate protectors retain active material and insure capacity during the battery's long life.

Compare these added all-star features . . .

★ **EXTRA-HIGH THICK PLATES . . .** Positives same thickness as negatives. Almost $\frac{1}{8}$ " higher than standard plates. This increased plate area means extra capacity.

★ **QUARTER-TURN VENT PLUGS . . .** A time saver when adding water.

Specifications

TYPE	XHMR-13	XHMR-15
Length	9 $\frac{1}{16}$ "	10 $\frac{1}{4}$ "
Width	7 $\frac{1}{16}$ "	7 $\frac{1}{16}$ "
Height	9 $\frac{3}{8}$ "	9 $\frac{3}{8}$ "
Weight	46 lbs.	52 lbs.
Capacities		
20 Hr. Rate	101 A. H.	118 A. H.
300 Amps.		
at 0° F. for	2.9 Min.	4.0 Min.



Capacity...Economy...Style

IN GMC MEDIUM AND HEAVY DUTY TRUCKS



A GMC is just the truck for business men with big, bulky loads that call for a vehicle of ample size and with the stamina and economy to assure greater savings or earnings.

Take the GMC 3-ton, at only \$895 chassis f.o.b. Pontiac. On the score of performance you can safely place your faith in such features as GMC valve-in-head engine, truck-built clutch, heavy-duty transmission, roller-bearing steering, set-back front axle and massive full-floating rear axle.

Economy features include down-draft carburetor, oil bath air cleaner, complete full-pressure lubrication, exhaust valve seat inserts, oil filter, removable main bearings and many other quality refinements.

And so eye-arresting is the advanced streamlined styling of this big, rugged GMC that owners can place a real dollars-and-cents value on such fine appearance. All in all, this modern GMC in the 3-ton range as well as every other type in the medium and heavier-duty ranges is truly an exceptional value—one that is a challenge to the field, especially when price is considered.



General Motors Trucks and Trailers

GENERAL MOTORS TRUCK COMPANY, PONTIAC, MICHIGAN

* Time payments available through our own Y. M. A. C. 6% plan.

Bend and Recover!

Bend and Recover!



PARISH ^{PRESSED} STEEL FRAMES

are like that!

A winning crew sweeps down the river! The pace is a killing one, and every one of those eight sinewy backs places a tremendous load on each oar at every stroke. Watch the oars bend—bend and recover, bend and recover.

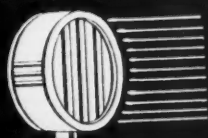
Parish Heat-Treated Pressed-Steel Truck and Trailer Frames are like that. Parish Frames are resilient. They bend under stress and recover when stress is removed. Parish Heat-Treated Frames accept repeated overload and road shock without taking a permanent set. They are always ready for the next haul. Parish Heat-Treated Pressed-Steel Truck and Trailer Frames have a fatigue value 200% greater than non-heat-treated frames. Users have discovered that Parish Frames are more economical on tires and fuel and have greater load capacity, because they bend and recover, bend and recover. These economies are profits.

Write to us for our brochure on Parish Frames. We can show you how you, too, may derive profit and economical operation from the use of Parish Heat-Treated Pressed-Steel Truck and Trailer Frames.

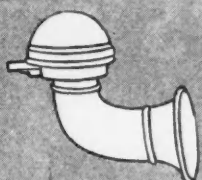
PARISH PRESSED STEEL COMPANY
Reading, Pennsylvania



We promise you these...and more...with **VOLT-O-MATIC** Generators



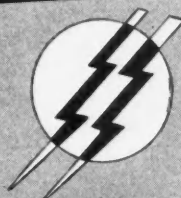
STEADY LIGHTS



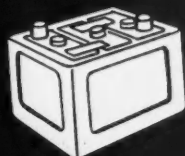
SAFER HORNS



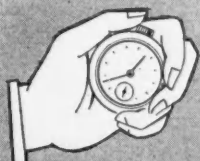
EASIER STARTING



IMPROVED IGNITION



LONGER BATTERY LIFE



**ON THE MINUTE SCHEDULES
MINIMIZED MAINTENANCE**

TWO OTHER AUTOMOTIVE ARISTOCRATS

Our Ditch and Fog Light has a triple beam that spreads a semi-circle of safety around the car. It's a life saver to bus, truck and taxi drivers.

The Neverstall Windshield Wiper is driven by its own electric motor; hence gives uniform service at all speeds. Never fails going up hill or "giving 'er the gas."

Ask for full information about these products which appeal to those who want the best performance, greatest endurance and maximum efficiency, regardless of price.

TO many a fleet owner it's still news—the way voltage regulation protects the battery and permanently peeps up the entire electrical system.

Yet for over 20 years—on *hundreds of thousands of cars, trucks and buses*—Volt-O-matic Generators have been insuring on-time schedules; minimizing maintenance costs; providing steady lights, safer horns, easier starting, improved ignition, longer battery life. To understand why, check the following combination of factors against any other generator made:

1. When the engine is running, the Volt-O-matic Generator (not the battery) furnishes all electrical current to lamps, horns, wipers—all the current consumers. Like a perpetual watchman, the integral Regulating Unit of this generator sees to it that each consumer gets just the amount of current it requires—never too little; never too much.

2. With the Volt-O-matic Generator, the job of the battery is far easier than ever before. Now it becomes merely a reservoir, to operate the starter and to furnish current when the engine is not running. Now the battery need never go hungry, or become choked from over-feeding. For the Volt-O-matic regulator feeds the current to the battery, too, precisely in accordance with its needs.

3. Volt-O-matic Generators represent more than two decades of experience in the development of voltage regulation. They have stood the test of years. They are permanently lubricated! They are trouble-proof—often operating for 100,000 miles and more without requiring any attention. Their workmanship is unexcelled anywhere in the world. They are competitively priced. When you insist on Volt-O-matic Generators, you are playing safe—you are taking no chances!

Even if you're not having any serious difficulties with generators or batteries, can you ignore the efficiency, the economies, the confident assurance which are yours with Volt-O-matic Generators? Investigate—write today for the new booklet giving comprehensive information.

The makers of American-Bosch products have always taken pride in creating, designing, building and selling products superior to those commonly in use. Built to a high standard of quality, these products are proven leaders in their fields.

UNITED AMERICAN BOSCH CORPORATION

SPRINGFIELD, MASS.

NEW YORK

CHICAGO

DETROIT

$\frac{a \times b \times c}{d \times e} =$ The **GRAMM LINE**

A Successful Formula for Truck Owners and Operators in which—

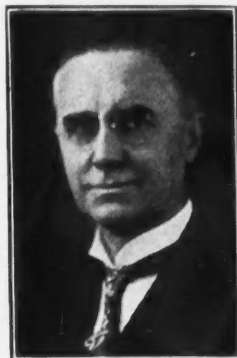
a = SIXTY GASOLINE MODELS \$ **565**.00
STARTING WITH 1½-2 TON AT Std. Chassis at Factory

b = THIRTY DIESEL MODELS \$ **1995**.00
USING HERCULES ENGINES STARTING WITH 2½-3½ TON AT Std. Chassis at Factory

c = COMPLETE ENGINE-TRANSMISSION-CLUTCH
ASSEMBLIES • GASOLINE OR DIESEL
READY FOR USE IN EXISTING TRUCKS

d = GRAMM DESIGN • MANY PRESENT DAY
STANDARDS OF TRUCK DESIGN WERE
ORIGINATED BY GRAMM

e = LOW UPKEEP AND OPERATING COST
THE GRAMM LINE HAS BEEN
CONTINUOUSLY PRODUCED SINCE 1899



B. A. GRAMM
President



WILLARD J. GRAMM
V. Pres. and Chief Eng.

GRAMM MOTOR TRUCK CORPORATION

EXPORT
WILLYS EXPORT CORP.
TOLEDO, OHIO, U. S. A.

DELPHOS, OHIO, U. S. A.

GRAMM TRAILERS ARE AVAILABLE AT LOW COST



POWERFUL AND FAST-BUILT TO LAST!

"They keep our trucks rolling."
—BRASHEAR TRUCK CO

"As severe as a test could be."
—ETEX BUS LINES

LONG HAULS—HEAVY LOADS—CONTINUOUS SERVICE

THOMPSON ENGINE AND CHASSIS PARTS KEEP TRUCKS ON THE ROAD

THOMPSON PRODUCTS, INC.
CLEVELAND • DETROIT

"Thompson Products save us a lot of grief."
—JACOB LAUB BAKING CO

"Increased horsepower—
reduced oil consumption."
—BOSWELL BROS. MOTOR
FREIGHT CO

"Your products have given 100% satisfaction."
—SQUARE DEAL CARTAGE

"We use Thompson Parts—
there are none better."
—IVES ICE CREAM
COMPANY



Thompson



Products

BALANCED

There's a GMC trailer complete with body to match



Buyers of GMC trailers are assured of matched design and construction. Not only are the trailers themselves available in sizes to fit the needs of 9 out of 10 operators, but they are also obtainable complete with standard bodies to fit. There are both smooth-side and corrugated-side bodies—open or closed, square or round-nose. Each is matched to the trailer chassis for which it is designed. Each is built to the same high

standards as the chassis itself. And for those operators who find need for bodies of special design, body builders located at strategic points throughout the country are ready to co-operate with GMC engineers to the end of securing "balanced" design in keeping with GMC high standards.

Look to GMC for trailer values that challenge the field. Call your nearest GMC dealer for the facts.

THE TRAILER OF VALUE

GENERAL MOTORS TRUCK COMPANY, PONTIAC, MICHIGAN

COMMERCIAL CAR JOURNAL
AUGUST, 1936

Now AUTO LITE SPARK PLUGS



◆ For the first time, ignition engineers themselves have engineered a spark plug as it must be engineered . . . as an essential unit in the ignition system . . . built to work in perfect harmony with the other units and thus produce perfect performance. Known technically as matched impedance, this absolute balance between all units of the ignition system is the greatest advance in spark plug history.

Auto-Lite engineers produced this revolutionary spark plug. They know ignition, for Auto-Lite has provided original electrical equipment to a majority of engine manufacturers for twenty-five years. This vast wealth of knowledge, plus the unique position and facilities of The Electric Auto-Lite Company, are what make possible this startling new plug. New

materials and new alloys are used in its manufacture. The most accurate precision instruments ever designed for making spark plugs are employed. A complete and ultra-modern factory has been built, newest and finest of Auto-Lite's many manufacturing units. Here the entire Auto-Lite Spark Plug, including Auto-Lite's own specially prepared ceramic body, is made and assembled.

Auto-Lite Spark Plugs are now in production. For complete details of the plug itself and the aggressive merchandising that will help you sell it, call your jobber today. If he cannot furnish you full information, write or wire to Merchandising Division, The Electric Auto-Lite Company, Toledo, Ohio.

*The Plug is
here...*

For the FIRST time a spark plug

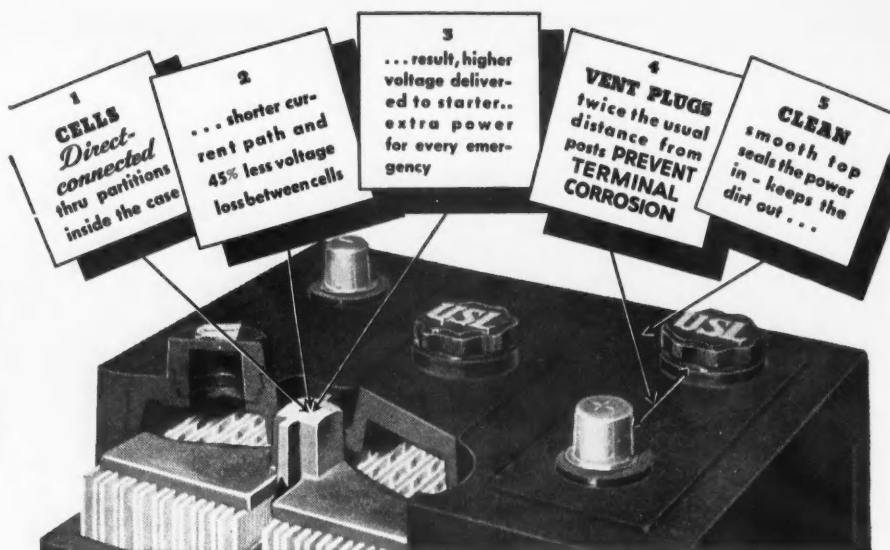
**Ignition
Engineered**

BY IGNITION ENGINEERS

- 3 ✕ Spark Plugs dominate in original equipment
- 3 ✕ Spark Plugs dominate in replacement sales
- 3 ✕ Spark Plugs dominate in national advertising

*the change
is coming!*

CUT YOUR OPERATING COSTS WITH THE NEW



USL COMMERCIAL SERVICE BATTERIES

*Specially Designed for Commercial Service
Different from Ordinary Passenger Car Batteries*

The mileage driven in commercial service is generally two or three times that of ordinary passenger car service. That's why ordinary passenger car batteries cannot give satisfactory, economical performance in commercial service. "High mileage" causes over-charging, and a recent survey shows that in commercial service more batteries are ruined from over-charging than from any other cause.

How USL engineers have overcome the damaging effects of overcharging and increased starting power and battery life as well.

HEAVIER PLATE GRID. Over-charging oxidizes the grid bars and causes premature plate deterioration. Therefore, USL engineers have designed a special commercial service grid with considerably heavier grid bars.

70% THICKER PLATES. The thicker a plate the longer it lasts. USL Commercial Service battery plates are 70% thicker than those used in the ordinary passenger car bat-

tery. A special plate material has been developed to withstand over-charging. Plates are 10% higher than in ordinary passenger car batteries. This extra plate surface provides extra starting power.

USL DURABAR SEPARATORS last longer and prevent battery failure from short circuits between plates, because they are reinforced with hard rubber bars and are 29% thicker than ordinary passenger car battery separators. They provide double insulation of wood and rubber without reducing electrical capacity as do most rubber separators.

HEAVY, GENUINE HARD RUBBER CASE to withstand excessive vibration and road shock.

It's the best Commercial Service battery we've ever built in our 37 years as battery manufacturers!

USL BATTERY CORPORATION

(Division of The Electric Auto-Lite Corporation)

Niagara Falls, N. Y.

Oakland, Calif.

Oklahoma City, Okla.



MAIL THIS COUPON

USL BATTERY CORPORATION—NIAGARA FALLS, N. Y.

Please send us Bulletin No. 417 describing your new Commercial Service Batteries.

We operate _____ commercial cars and trucks.

(Company) (Address) (Attention of)

CCJ-8

A SUCCESS STORY

of Interest to you Mr. Truck Operator

4 gears Lower
than usually available -
more power
when needed

4 gears Higher
than usually available -
more profitable speed
when wanted

High efficiency
with remarkable
economy always

THE two speed axle idea, pioneered by Eaton, is being given phenomenal acceptance rarely accorded a piece of truck equipment.

Sales of trucks carrying this axle are mounting each week — the natural result of the increased profits being obtained by operators through ability to adapt truck speed, engine speed, power and fuel consumption more closely to the complex hauling conditions existing today.

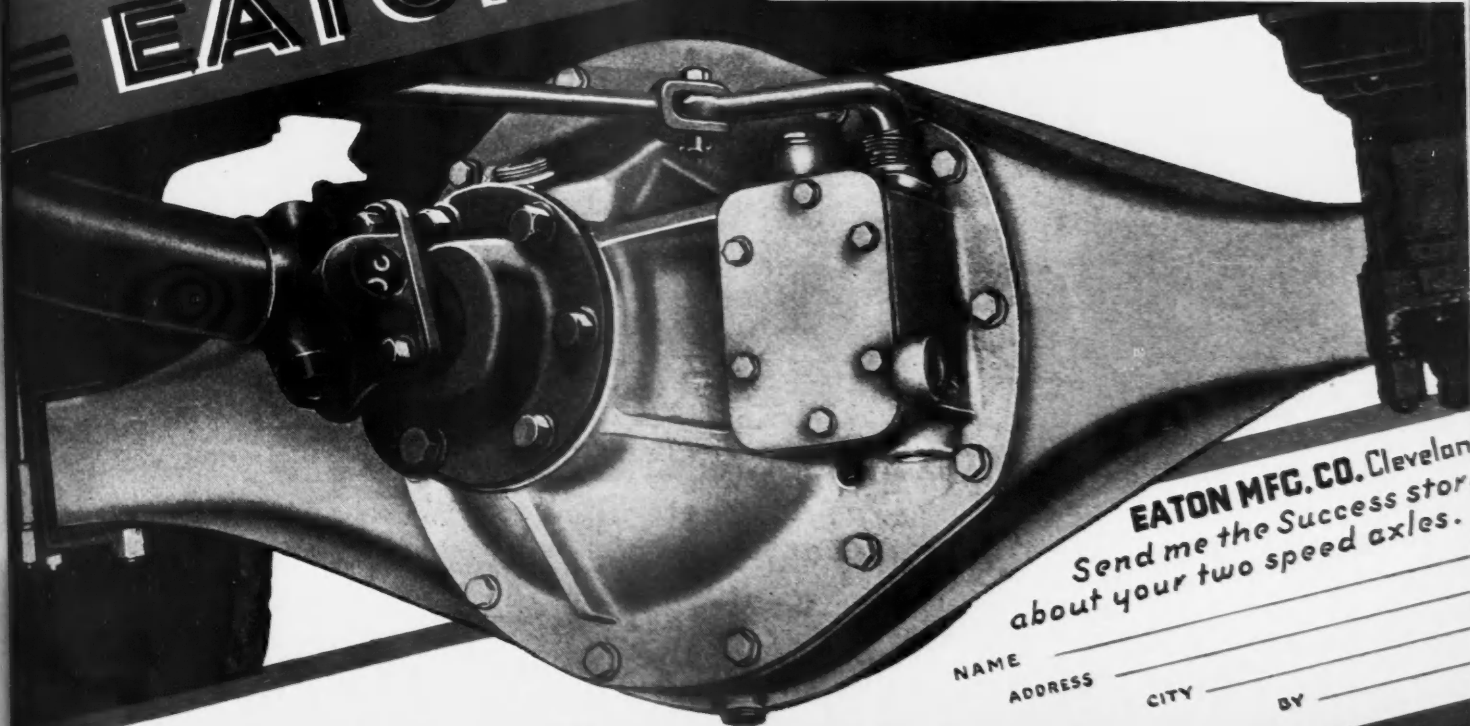
You too, can enjoy these advantages, as Eaton 2-speed axles are available in sizes for trucks with capacities from 1½ tons up.

Send the coupon for information regarding this 2-speed axle which is rapidly coming to be regarded as absolutely essential to most efficient and profitable truck operation under present day conditions.

EATON MANUFACTURING COMPANY
CLEVELAND
OHIO

EATON ^{Ruckstell} 2 SPEED AXLE

★ The PIONEER
2 speed axle of which
over 500,000 units have been so



EATON MFG. CO. Cleveland
Send me the Success story
about your two speed axles.

NAME _____

ADDRESS _____

CITY _____

BY _____

WARNING

Beware of counterfeit Delco-Remy ignition replacement parts which are now being offered to the trade at cut prices.

These parts are clever imitations of the genuine article. The trade-mark stamped upon them is almost identical with the Delco-Remy trade-mark. They are packed in tin-capped boxes bearing a cleverly forged label of the copyrighted design.

Although the materials and workmanship in these fake parts are very poor, it is difficult to detect these counterfeits by a casual examination.

You can safeguard your customers and your own business by refusing to buy any alleged Delco-Remy parts which are offered to you at cut prices.

You can make certain that you are getting genuine Delco-Remy parts by buying your supply from authorized United Motors Service dealers, *exclusive Delco-Remy distributors.*

Don't purchase any Delco-Remy parts from unknown sources. Help legitimate suppliers and dealers to stamp out these counterfeiters by reporting any such offers made to you, directly to us or to any United Motors Service branch.

DELCO-REMY CORPORATION, ANDERSON, INDIANA

Delco-Remy



Delco-Remy products are sold and serviced in the United States and Canada by United Motors Service—in foreign countries by Overseas Motor Service Corporation.



HOW TO SELECT A BETTER SPARK PLUG



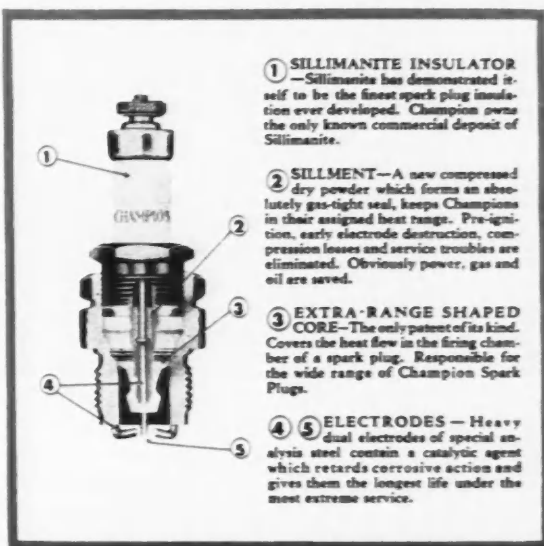
**CHOOSE THE
SPARK PLUG
CHAMPIONS
USE**

Champion has recently had the great satisfaction of perfecting, through the use of Sillment, a compressed dry powder seal, what is, to the best of our knowledge, the first completely and permanently gas-tight spark plug.

Years of constant research are back of this single advance, but it is only one of a score of similar developments in the last 26 years. All have involved great investments of time and money, in many arts and sciences, human skill and ingenuity, manufacturing and engineering equipment. The sole purpose of this is that Champions will give every engine better, more economical and more dependable performance.

Judge spark plugs by who uses them and you will unerringly choose Champions. Since Champion's introduction they have enjoyed an ever-growing preference among fleet owners and the majority of the world's motorists, while over 600 makes of spark plugs have appeared on, and dis-

appeared from the market. Today the majority of American automotive engineers as well as fleet owners specify Champion Spark Plugs.



Champion

EXTRA-RANGE SPARK PLUGS



TO KEEP ENGINES YOUNG, TEST CLEAN AND REPLACE SPARK PLUGS AT REGULAR INTERVALS
COMMERCIAL CAR JOURNAL
AUGUST, 1936

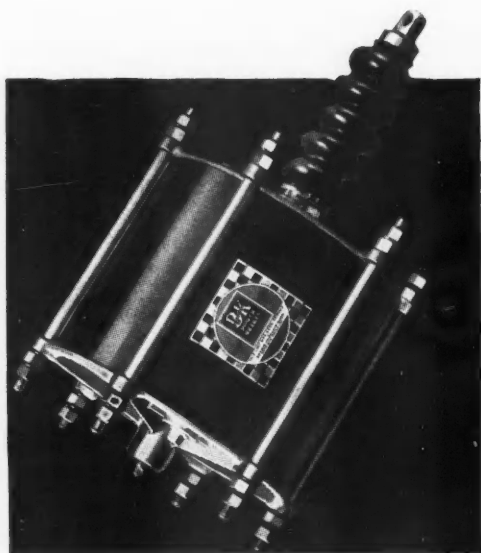
ALL POWER BRAKING

ought to be

BENDIX

POWER BRAKING

but only 96%
of it is!

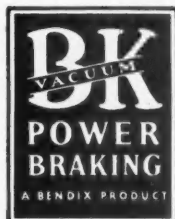


- ★ Fully Controlled Power Application
- ★ Least Weight Added
- ★ Fewest Added Parts
- ★ Low First Cost
- ★ Practically No Maintenance
- ★ Instant Remote Control
- ★ All Emergency Features of Train Operation
- ★ Quickly Installed
- ★ Original Brake System Left Intact
- ★ Nation-Wide Exchange Plan
- ★ Nation-Wide Service Organization
- ★ Years of Power Braking Experience and Unapproached Protection Over Future Years of Service

EVERY advantage that power braking can offer is yours when you equip with Bendix B-K Controlled Vacuum Power Braking . . . and the more important of these advantages are not obtainable in any other form of auxiliary or supplementary stopping equipment.

"Reactionary Cushioning", which maintains "pedal-feel", eliminating sudden lock-wheel stops, is one exclusive Bendix advantage. Nation-wide service and more than ten years of successful use, are others. A nation-wide Bendix B-K Exchange service plan, saving tie-up of the vehicle, is another point to remember.

Since the superiority of Bendix B-K from every point of view is so evident, doesn't it seem reasonable that all power braking ought to be Bendix Power Braking? Let us furnish you all the facts.



BENDIX PRODUCTS CORPORATION

(Subsidiary of Bendix Aviation Corporation)

401 Bendix Drive
South Bend, Indiana

THORNTON

FOUR REAR WHEEL DRIVE



Certified Cost Figures, Thornton-Chevrolet
20-Ton Commercial Economy Run, 2639
miles, April 20-May 12, 1936.

EQUIPMENT

Standard Chevrolet 1 1/2-Ton Truck Chassis Trans-
formed by Thornton Four Rear Wheel Drive;
22 ft. Semi-Trailer; Fifth Wheel; Air Brakes.

LOAD

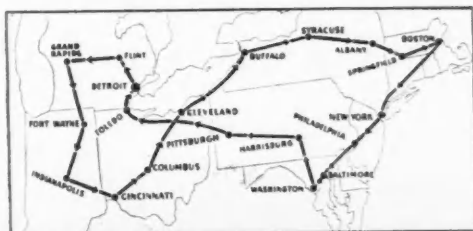
30,620 pounds of Concrete Blocks.
Gross rolling weight, 42,110 pounds.

PERFORMANCE

Total Gasoline Cost	\$95.56
Average Miles per Gal. Gas	5.117
Gasoline Cost per Mile	\$.036
Gasoline Cost per ton-mile, gross	\$.00172
Gas. Cost per ton-mile, payload	\$.00236
Total Motor Oil used, quarts	3.7
Gas & Oil per ton-mile, payload	\$.00239
Payload ton-miles per Gal. Gas	78.34
Gross ton-miles per Gal. Gas	107.71
Average miles per hour net	19.7

Thornton transfer case and two rear axles consumed
1.4 lbs. of lubricant at cost of 35¢.

ROUTE OF 2639 MILE TEST RUN



*establishes a record
that will amaze all
owners of old-style
heavy truck equipment*

\$.00239 is a fraction more than two mills; less than a quarter of a cent. That was the cost of fuel and oil per ton of payload per mile—a *new record!* Unlike the usual conditions of commercial runs where the vehicle delivers its cargo and returns empty, or carries loads of varying weight, it is important to keep in mind that the Economy Run figures include a constant load factor, through heavy traffic with frequent stops and starts, and over mountain ranges.

Astonishing as the Economy Run figures may seem, they are an ordinary matter of course to Thornton Four Rear Wheel Drive users in many lines of heavy hauling. Chevrolet volume production reduces the initial cost of the chassis; Thornton engineering insures long life; Thornton capacity adds the profit to the hauling job, and economy of operation is the clincher.

It is no longer necessary to pay \$3,500 to \$6,000 for hauling equipment to carry payloads of six to fifteen tons.

The Thornton Tandem Company, its distributors, or any Chevrolet dealer or salesman, can give you such additional facts as will permit you to decide whether or not you can use this equipment to advantage.

WRITE FOR BULLETIN A-C

U. S. PATENTS 1897153
2047088

CANADIAN PATENTS 356472
357064

OTHER PATENTS PENDING

THORNTON TANDEM CO.

DETROIT, MICHIGAN, U. S. A.



3 yard Moto-Mixer. Contractors everywhere adopting this method.



Earth Borer. Public utility companies rapidly adopting Thornton equipment.



Ideal for inter-city freight hauling. Speed—power—traction.

... to meet every need
to fit every pocketbook!

"Quality first" is the first law of "SIOUX" in making Bench Grinders, as in making all other "SIOUX" Tools. Improved design, quality in construction, materials and workmanship that means efficient operation and long, faithful service.

No. 2050—with $\frac{3}{4}$ H.P. motor—a heavy duty, completely equipped grinder of latest design, for all general shop grinding and buffing. Ball bearings oil packed and sealed, no further lubrication required. Enclosed guards with 6x8 inch shatter-proof safety eye shields. Handy shaded lights. Two grinding wheels 10x1 inch with $\frac{3}{4}$ -inch hole, one fine and one coarse. Specify motor—110 or 220 volt A.C., 1, 2, or 3 phase; 60 cycle, 1725 R.P.M.; 50 cycle, 1425 R.P.M. **\$98⁰⁰**
Net Price.....

No. 2049—Same as above, but including cast iron pedestal with water pot and tool tray. **\$122⁰⁰**
Net Price.....

No. 2035—Heavy duty—with $\frac{1}{2}$ H.P. motor. Ball bearings oil packed and sealed. Enclosed type guards, safety eye shields, two 7x1x $\frac{5}{8}$ inch grinding wheels (fine and coarse) cord, switch and plug **\$60⁰⁰**
Net Price.....

No. 2005—Heavy duty $\frac{1}{4}$ H.P. Ball bearings oil packed and sealed. Adjustable tool rests, enclosed type guards, two 6x $\frac{3}{4}$ x $\frac{1}{2}$ inch grinding wheels (coarse and fine) 10-foot cord, plug, switch. **\$42⁰⁰**
Net Price.....

No. 2070—A dust proof, $\frac{1}{4}$ H.P., ball bearing grinder requiring no further lubrication. Comes complete with tool rests and two 6x $\frac{1}{2}$ x $\frac{1}{2}$ inch grinding wheels, (fine and coarse) 8-foot cord, attachment plug and switch. **\$23⁵⁰**
Net Price.....

YOUR JOBBER SELLS THEM

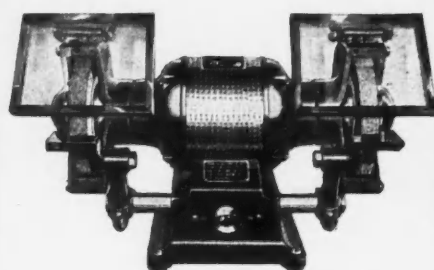
ALBERTSON & CO., INC.
SIOUX CITY, IOWA U. S. A.

STANDARD THE  WORLD OVER



No. 2050
without
pedestal

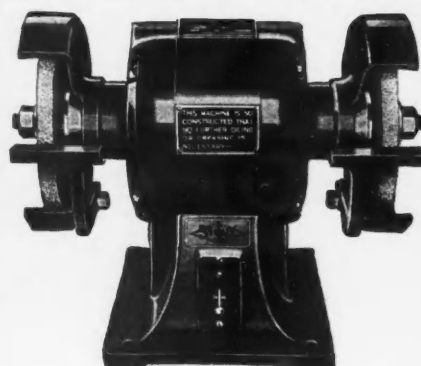
No. 2049 — 10-inch Bench Grinder



No. 2035 — 7-inch Bench Grinder



No. 2005 — 6-inch Bench Grinder



No. 2070 — 6-inch Bench Grinder

HEIL HYDRAULIC DUMP UNITS



HEIL PRODUCTS ARE DESIGNED AND BUILT TO INSURE SUCH UNUSUALLY GOOD SERVICE IN THE FIELD THAT WHEN A HEIL USER NEEDS ADDITIONAL EQUIPMENT HE INSTINCTIVELY INSISTS ON DEPENDABLE HEIL HOISTS, BODIES AND TANKS... ONCE A HEIL USER ALWAYS A HEIL BOOSTER!

Here is one of the popular type "SL" Heil hydraulic dump units that has won the confidence and everlasting praise of dump truck operators everywhere — and here is why! (1) Cab controls — (2) Alternate pump drive simplifies installation — (3) Heavy duty universal joint — (4) Integral Heil pump eliminates high pressure piping — (5) Nickel-iron cylinder having honed bore — (6) Reinforced frame — (7) Wood sills — (8) Hoist piston head fastens to body subframe to prevent back-tipping — (9) Tubular rear cross-brace — (10) Sturdy, cast-steel hinges — (11) Reinforced body subframe — (12) Tailgate control handle easily accessible from cab — (13) Front and rear higher than sides — (14) Offset type tailgate hinges provide extra large tailgate opening . . . Before you buy HOISTS, BODIES and TANKS be sure to GET HEIL RECOMMENDATIONS . . . send today for your free copy of the new Heil equipment manual . . . address:

THE HEIL CO.

FACTORY AND GENERAL OFFICES
3000 WEST MONTANA ST., MILWAUKEE, WIS.

BRANCHES AND DISTRIBUTORS EVERYWHERE

Julius P. Heil
PRESIDENT THE HEIL CO.



Reduce winter operating costs...



SPECIFY "ZERONE" FOR YOUR TRUCKS

IT'S a tough problem to maintain schedules and keep costs down during the winter. Road conditions are bad enough, but you don't have to worry about freeze-ups, even in the coldest weather, if you specify "Zerone" for anti-freeze protection. You can't beat "Zerone" for season-long economy, and here's why:

In a laboratory test, du Pont scientists proved that "Zerone" can keep water from freezing even at 215° below zero. You'll never meet weather like that, but with "Zerone" in your equipment, you'll be safe in the coldest weather you ever *will* meet. "Zerone" is so effective you need less of it, and the

rate of evaporation loss is very low.

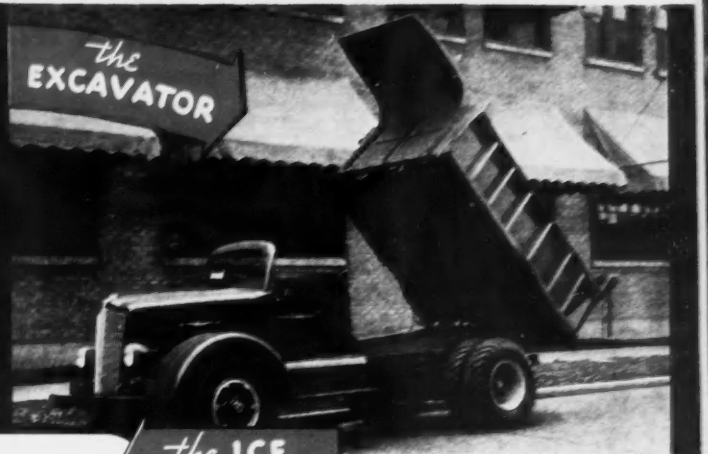
Road tests show that "Zerone" in your radiator actually maintains and even increases engine horsepower. That's because "Zerone" and water pass off heat even better than water alone. And it will keep your engines in good condition *all year-round*, because "Zerone" prevents rust and corrosion in a clean cooling system.

"Zerone" is sold in sealed, tamper-proof gallon and quart cans or in fifty-four gallon drums. E. I. du Pont de Nemours & Co., Inc., "Zerone" Sales, Wilmington, Delaware.

FOR YOUR PEACE OF MIND, NEXT WINTER, ORDER ZERONE NOW!

COMMERCIAL CAR JOURNAL
AUGUST, 1936

Who Uses **GAR WOOD** TRUCK EQUIPMENT



THESE have been boosters for Gar Wood truck equipment for years. They want ruggedness—dependability—long life. They want equipment that makes hard jobs easy. More than ever before, they want a quality appearance that serves to advertise their business. Leading truck operators choose Gar Wood equipment because it answers every requirement. Write for vocational bulletins describing hoists, dump bodies, tanks or winches.



GAR WOOD INDUSTRIES, INC.

DETROIT, MICHIGAN

WORLD'S LARGEST MANUFACTURER OF TRUCK EQUIPMENT

S

W!
RNAL
1936

Is the **NATION** *at the* **CROSSROADS?**

Must The American Electorate Make A Fateful Choice This Fall? . . . That is a matter of opinion. Which Party embraces greater Americanism of principle is also a matter of opinion.

But there can be only one opinion about this:

The Issues to be Voted Upon This Presidential Election of 1936 Are the Most Important Put Before the People of the United States Since 1860

Therefore

**Do Not Let 57% of the Voters Settle The Issues
In Which You Are So Vitally Interested.**

**WHATEVER YOUR PARTY • WHATEVER YOUR OPINION
HELP GET OUT THE WHOLE VOTE**

Urge your employees to register and vote. Allow them time to do both. Post notices, talk to them, remind them and all your business acquaintances, friends and relatives,

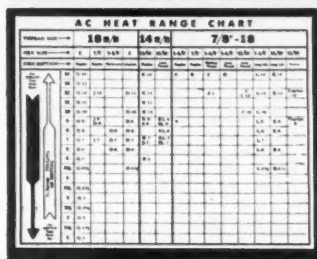
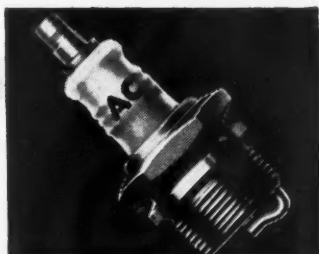
THAT A CITIZEN'S FIRST DUTY IS TO VOTE

If intelligent men and women will not vote they betray their country to the unprincipled and ignorant.

COMMERCIAL CAR JOURNAL

Why

CAN THESE THREE HELP YOU REDUCE SERVICE INTERRUPTIONS?



1—AC LONG LIFE SPARK PLUGS — The compression tightness of the AC one-piece, patented construction assures greater freedom from the too rapid electrode wear and early plug failure which blow-by causes. Double-weight Isovolt electrodes double the electrode life and reduce the frequency of gap adjustment.

Structurally, AC Long Life plugs furnish assurance of dependability with a wide margin over actual needs. But all plugs get dirty. And the conditions under which individual engines operate may vary from those standards on which plug specifications are based.

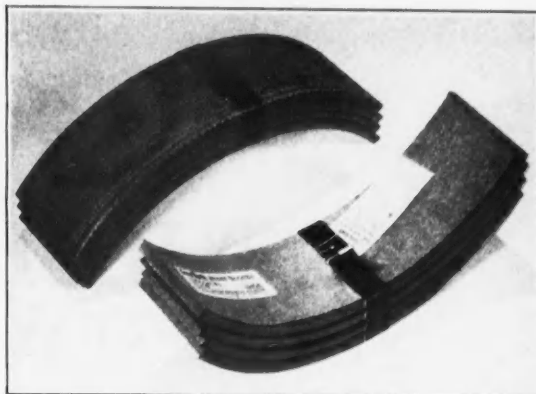
2—AC PLUG CLEANING MACHINE thoroughly cleans a plug in 5 to 11 seconds. Designed by AC engineers, it does not damage insulators. This reliable shop tool cuts down the "out of service" time caused by plug failure on the road because it keeps the plugs at peak efficiency.

3—AC HEAT RANGE CHART is the key that fits AC Long Life plugs to engine operating conditions which vary from standard. It instantly indicates the "Hotter" or "Cooler" AC plug type which will remedy excessive fouling or rapid electrode wear and pre-ignition.

Thus, in design, in provision for cleaning and servicing, and in provision for assuring fullest performance efficiency, this "AC Trio" offers the maximum in reduction of service interruptions. You can depend on this combination to give complete satisfaction.



● **AC SPARK PLUG COMPANY**
FLINT, MICHIGAN ST. CATHARINES, ONTARIO



1 BOOK + 2 BLOCKS

Will Balance Every Brake in Your Fleet with the **Grey-Rock** Plan

You may have six makes of truck in ten different tonnages. You may use trailers, semi-trailers, and six-wheel combinations, but this one Grey-Rock Guide and these two different type Grey-Rock blocks are all your shop needs to give Balanced Brake Action to all of them.

This combination, the first scientific and complete analysis of fleet brakes, was produced by Grey-Rock engineers after surveying 250,000 vehicles in the field. The Recommendation Guide shows exactly which block to use on each shoe of each wheel and axle, and how to service all makes of brake, so that all your brakes will do their full share in providing quick, quiet, smooth stops.

Your Grey-Rock Jobber has a free copy of this guide for you. He also carries both Grey-Rock Blocks (orange edges) and HiWaY BloX (black edges) in all sizes.

Grey - Rock Power Plus Clutch Facings don't grab, slip or chatter and give longer wear. They are the choice of leading fleet operators and commercial vehicle manufacturers.



Now is the time to get set with good reliable clutch facings to avoid delays and expensive tie-ups in winter weather.

UNITED STATES ASBESTOS DIVISION of Raybestos-Manhattan, Inc., **MANHEIM, PA.**

BRAKE LININGS • CLUTCH FACINGS • FAN BELTS • HOSE • PACKINGS • RELINING EQUIPMENT

**Cut
Maintenance Costs**

**Improve Fleet
Performance**

with the new

BLACK & DECKER Electric VALVE SHOP



**More Than Pays Its Way In Any
Commercial Car Maintenance Shop**

HERE'S the new valve reconditioning equipment which cuts costs in the shop—reduces “out-of-use” time to a minimum—and turns out more accurate valve work that helps you keep the fleet performing at top efficiency. Read these seven reasons why the Black & Decker Electric Valve Shop belongs in every auto, truck or bus maintenance shop:

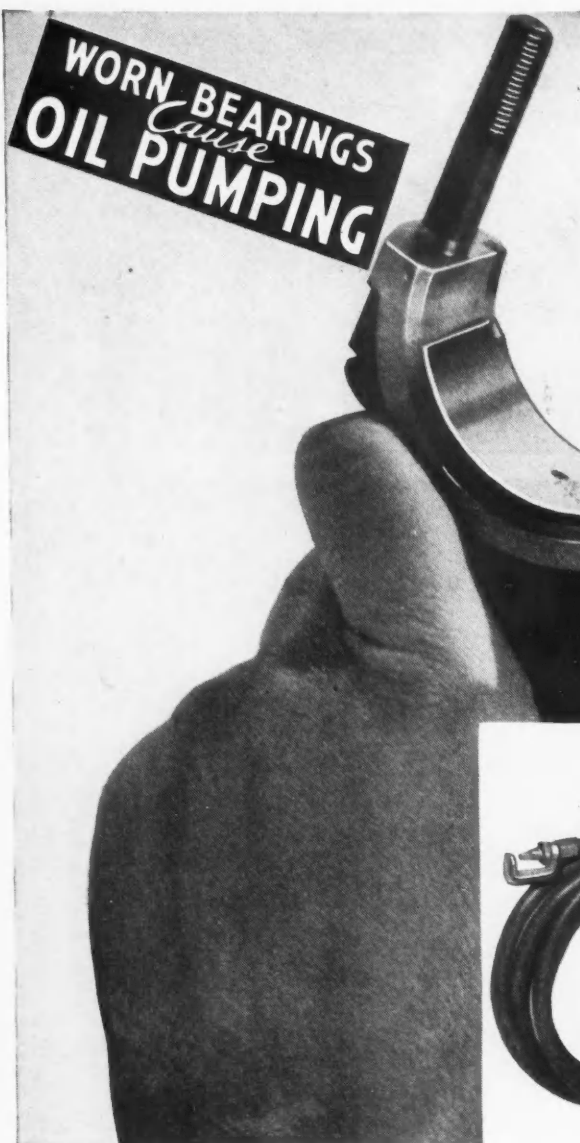
1. Rolls right up to the car with all tools necessary for a complete valve reconditioning job. Saves time, temper, lost tools. **2.** Refaces auto, truck, and bus valves. Re-grinds all types of valve seats including Stellite inserts, by Vibro-Centric method. **3.** Contains set of valve guide

cleaners and carbon-cleaning brushes. **4.** Adjustable lamp on cabinet focuses ample light directly on work. **5.** Convenient racks on both sides of cabinet hold valves and keep them in order while refacing. **6.** Cabinet completely wired for tools and lamp. Two outlets on side of cabinet. 20-foot cable supplies all current needed from one wall outlet. **7.** Shelf and large storage bin in back of cabinet for hand tools, drills, spare parts, hand light, rags, etc.

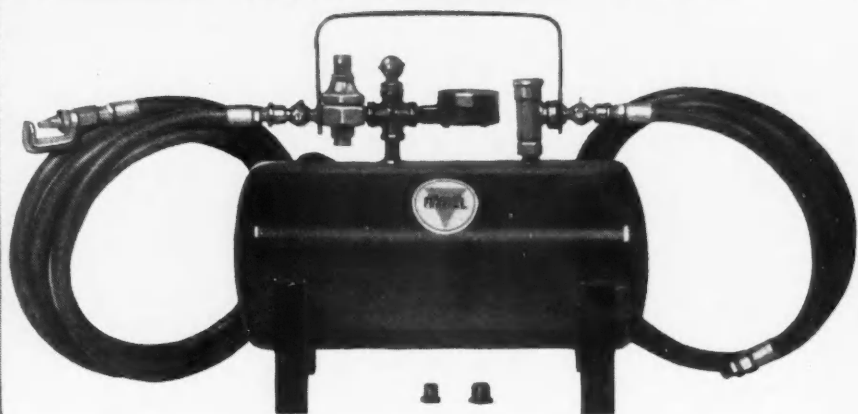
Get full details about the time, labor and money saving advantages of the new Electric Valve Shop, today. Ask your jobber, or write to **THE BLACK & DECKER MFG. CO.**, 732 Pennsylvania Ave., Towson, Md.

BLACK & DECKER

World's Largest Manufacturer of
PORTABLE ELECTRIC TOOLS



ENGINE BEARING REPLACEMENT *Completes* THE JOB OF OIL CONTROL



FIND OIL WASTING BEARINGS QUICKLY!

EXPERIENCED fleet service men know that worn engine bearings are just as guilty as worn rings or cylinders when it comes to excessive oil consumption. They also know that when the engine bearings are responsible for oil loss, there is only one way to stop that loss, and that is to replace the bearings.

This scientific new Federal-Mogul Oil Leak Detector, many of which are already in use among leading fleet operators, quickly tells you when the bearings in any engine are wasting oil.

It eliminates guess work—saves your mechanic's time—cuts shop costs—helps you get the job back on the road again quickly. Any mechanic can use it—quickly check the condition of all engine bearings, oil headers and internal oil lines on full-pressure lubrication systems.

Ask your Federal-Mogul jobber for complete information—or mail coupon below. The cost of the Federal-Mogul Oil Leak Detector is small. The amount of money it will save you is big.

"REPLACE WITH FEDERAL-MOGUL"

When you replace main bearings, connecting rods, or insert precision-type bearings, use Federal-Mogul replacements. They are engineered products, mechanically and metallurgically right for the job of oil control. Cadmium-Silver-Copper lined bearings; bronze-back babbitt-lined bearings; steel-back babbitt-lined bearings; piston pin bushings; connecting rod service, connecting rod bolts and nuts; bearing anchor screws; Laminum shims, solder, bronze bars and babbitt metals.

Federal-Mogul
FEDERAL
Only Complete Service Line

FEDERAL-MOGUL CORP., 4805 JOHN R ST., DETROIT, MICH.

I am interested in your Oil Leak Detector. Please tell me more about it.

NAME _____

ADDRESS _____

CITY _____

STATE _____

COMMERCIAL CAR JOURNAL
AUGUST, 1936

Money Makers — Continued

- 108A** HERCULES STEEL BODIES offer more in dump bodies. See page 108. You can get full specifications by checking the card. Write to HERCULES for illustrated literature.
- 108B** DITZLER AUTOMOTIVE FINISHES — PYROXYLIN LACQUERS—SYNTHETIC ENAMELS—have been standard in the automobile industry since 1902. Read about them in the ad on page 108, then write to us for the information you will certainly want.
- 108C** Oil and grease are soluble in water! Just add MAGNUSOL. Its use makes cleaning of motor and chassis a simpler, quicker, cleaner operation. See page 108 for offer of automotive handbook and check the post card.
- 108D** A shop with the full FITZGERALD GASKET LINE is able to meet any kind of gasket job. See page 108. Then check the card for some time-saving information.
- 108E** What's the first and last word in Governors? It's MONARCH, as you'll discover when you read the ad on page 108. Then you'll learn more about it if you check the post card and mail it to us for the details.
- 108F** DEARBORN LINE CAB-OVER-ENGINE for Ford Trucks still goes on increasing the profits of many Ford owners. Read about it on page 108 and then send the post card to us for the details.
- 108G** HUG trucks are famous as the trucks that are built to meet the conditions. See page 108. Then check the card for HUG truck specifications.
- 108H** Want to convert your Ford or Chevrolet Truck into a RUGGED, POWERFUL 4-WHEEL DRIVE? See Alma Mfg. Co., page 108. Check post card for details.
- 108I** Do your hauling jobs call for standard or special dump bodies? PERFECTION STEEL BODY CORPORATION makes both. One body is illustrated on page 108. For full details you should check the card.
- 109A** Diesels are money savers. STERLING DIESEL MOTOR TRUCKS are most economical of all. Amazing fuel costs can be effected and you can learn a lot about this by checking the card. Some of the figures are on page 109.
- 109B** HERCULES POWER units, gasoline and Diesel, are used in every type of work requiring engine capacities from four to two hundred horsepower. It will pay to check the card. See page 109.
- 109C** WONDERWELD works sixty times faster in sealing cracked engine blocks. Check the card for details on this genuine high strength metal seal. See page 109.
- 109D** AHLBERG BEARING CO. has a much more important offering than page 109 might claim. Check post card for particulars.
- 109E** Tires are a principal trucking expense. Keep them checked properly with SCHRADERS. Air Gauges and streamlined valve caps are shown on page 109. Interesting details may be secured by checking the post card.
- 110A** BURCH DUMP BODIES are the ones with balanced power hoists; only one moving part; no gears; no oil lines. This remarkable body is displayed on page 110. You want the full story so mark the post card, too.
- 110B** Important money—which is pretty important—is being saved fleet operators through the use of PUROLATOR OIL FILTERS. We'd want to know about that if we operated a fleet, and we're sure you will. Learn more, via the post card. See page 110.
- 110C** The new HOOF Governor Sales Manual is off the press. It's free—see offer on page 110. Packed with facts—an invaluable aid for any person specifying governors on automotive or industrial engines. Mark your card for information.
- 110D** Follow the leaders, for they know the way—and read the ad on AUTOCAR TRUCKS on page 110. You can follow the leaders, too, in getting complete information, for they know the way is to mail us the post card.
- 110E** NOC-OUT HOSE CLAMPS are the standard equipment of the automobile industry. Read about them on page 110, then get complete information from us via the post card.
- 110F** Any mechanic is an expert pin fitter with HALL Piston Hole Hone. Avoid the grief of blade marked holes when a good job can be done so cheaply every time. See the ad on page 110. Check the card.
- 110G** TUNE-UP CHART of THE CARTER CARBURETOR CORPORATION brings in profits you have overlooked. A real business-builder and the offer is on page 110. It's easy to check card for details.
- 110H** DeVILBISS COMPANY publishes important information for every fleet or single unit operator. Read the ad on page 110, and then send the post card to us for more information.
- 111A** International, Ford and Chevrolet trucks can be equipped with BERG power brakes with Reactionary Control at a very low price. The story is on page 111. Check the card for details. Take advantage of power brake safety right away.
- 111B** BLACK DIAMOND All Rubber Seat Cushions wear like iron. Yet they are comfortable—warm in winter—cool in summer. See page 111. Available for any size or shape cab. Send us the post card; you'll get the details.
- 111C** Trucks don't skid on sand. Write for free information on the LINTERN SANDERS. The story is on page 111. Check the post card for all the dope.
- 111D** Don't close your eyes to this condition. One moment of no vision may cost you money. CASCO defrosters are made in all types and sizes at low price. Check the card for details. Take a look at page 111.
- 112A** Four to Twenty times the service of ordinary brake drums! That's a claim for wear that CEMCALLOY Brake Drum Manufacturers are backing up with figures. Save yourself some money by checking the post card. See page 112.
- 112B** What is ARMORPLY? Do you know what kind of panel bodies it is used for? With what kind of rust resisting steel it is faced? Read the ad on page 112, then fill out the post card and mail it to us for more information.
- 112C** SPONGE RUBBER PRODUCTS COMPANY. A corking sponge rubber seat cushion. Literally riding on air! Read SPONGEX AD on page 112, and check post card for more complete "dope."
- 112D** AIR PUSH is the answer to DEPENDABLE windshield cleaning—with the 100-lb. push of the air brake supply behind it. See page 112. Check post card for full details.
- 112E** Four-wheel drive increases traction in tough going and provides extra power under all conditions. OSHKOSH 4-WHEEL DRIVE TRUCKS are the goods—clear through. Ad on page 112. Check post card for all particulars.
- 112F** Fleets keep moving when pistons are re-ringed with SIMPLEX MOLIMUM PISTON RINGS. Read about them on page 112; then ask us for more complete information via the post card.
- 113A** Washing with ordinary methods is costly. ROTAWASHER Speedwashing is economical for fleets—money making for car washing businesses. It will pay you to check the post card and then turn to page 113 for details.
- 113B** Friction is charged to overhead. Genuine TIMKEN BEARINGS cut down that cost. See page 113. A checked post card brings more information.
- 113C** On page 113, the McCORD RADIATOR AND MANUFACTURING COMPANY tells you about their McCORD REFRIGERATOR FUEL SYSTEM FOR TRUCKS. You can get all the details by reading the ad, and writing to us via the post card.
- 113D** AMERICAN DIE & TOOL CO. make the fool-proof, positive acting Robinson Automatic Brake Lock for trucks and trailers. Check post card for illustrated literature. See page 113.
- 113E** Don't throw your oil away. Remove carbon, dirt and water with a W. G. B. Oil Clarifier. This money-saver is shown on page 113. Get the full story right away. Check the post card.
- 113F** FWD TRUCKS are available in sizes from 1½ to 15-tons. These trucks have a high degree of maneuverability. Write today for catalog and check the post card for additional details. See page 113.
- 114A** Follow the leaders, for they know the way—and read the ad on AUTOCAR TRUCKS on page 114. You can follow the leaders, too, in getting complete information, for they know the way is to mail us the post card.
- 114B** ST. PAUL Hydraulic HOISTS and BODIES fit every need. Convenient distributors are equipped for prompt shipments. See page 114. Check post card for full details.
- 114C** WAUKESHA is a great name in gasoline and Diesel engines. For their additional line, see page 114. Get full information by checking the post card.
- 114D** VEL-VAC SALES & SERVICE is available in 193 cities in all 48 states of the Union, besides Canada and Mexico! There's an agency in your city! See it today. At all events, read the ad on page 114, then write to us for any information you require.
- 114E** Panels of wood! Panels of metal-faced plywood! ALGOMA has both because fleets need both, depending on the type of work. See page 114. Then check the post card and don't forget to ask for the "Bag of Samples."
- 115** FORDS do it again! They are replacing high-cost trucks with material reductions in first and operating costs. Find out what V-8 economy means with your loads. Check the post card for details. The partial story is on page 115.
- 116** Perhaps you are changing your fleet's oil too often—or not often enough. The dope on analyzing an oil's condition is advertised on page 116. This Oil Manual is Free. Check the card for additional information.
- 117A** Specify BLOOD BROTHERS Universal Joints. It pays to have the five features of the new Series N Needle Bearing Joints. A service of their Engineering Department is described on page 117.
- 117B** Stand by! There's some real hot news about coils on page 117. The P and D MANUFACTURING COMPANY has built in some striking improvements in their coils and condensers. The P and D name means money saved to those who check the post card.
- 118A** Gaskets, grease retainers and pump packings are the high-grade products of the FELT PRODUCTS MANUFACTURING COMPANY listed on page 118. When writing to the advertiser, you will get additional information by checking the card.
- 118B** KINGHAM SEMI-TRAILERS are increasing in popularity all the time. You'd better learn about them by reading the ad on page 118, checking the post card and mailing it to us.
- 118C** G & O RADIATORS are good radiators. They have been proving it for 21 years. Radiator problems are important to fleet owners. Check the card for some radiator information that may save you money. Read page 118.
- 118D** "Locomotive Control" on your trucks. You get it with LATHAN POWER BRAKES advertised on page 118. You'll get a lot of valuable information by checking the post card at the same time you write the company.
- 118E** WATSON-BROWN-LIPE AUXILIARY TRANSMISSION gives your truck 3 axle ratios. This means more power at less cost. You'll find out how to get it if you check the post card and mail it to us for more information. See page 118.
- 119A** CORDS are the original Cupped Segment Rings. This principle sees to it that cold walls gets their share of oil—from the first turn of the motor. Check and mail the post card. Read about this principle on page 119.
- 119B** Sell LITTLE GIANT FRAME EXTENSIONS! There's a market for them right under your nose! Good business for you if you go after it! Read about the proposition on page 119, then write us for more information.
- 119C** TRUXMORE suggests that in summer you prepare for winter. 3rd axle of Truxmore design will stop dangerous jack-knifing and skidding on icy hills. See page 119. Then check the card for more information.
- 119D** MORSE TIMING CHAINS are original equipment on many cars and trucks. See page 119. What could be more logical than Morse Timing Chains for replacements? Check the card and don't forget to write the factory for data.
- 121** The LONG name is famous in the automotive and truck field. No grab, no chatter are but two features of the new clutch illustrated on Page 121. For details check and mail the post card.
- 122** YORK HOOVER fleet equipment specialists are at your service with a full line of panel and semi-trailer bodies. Some of your bodies are displayed on page 122. To get the dope on their various kinds of construction check and mail the card.

"Cleaning Problems" are no longer problems with a

WEAVER CAR WASHER

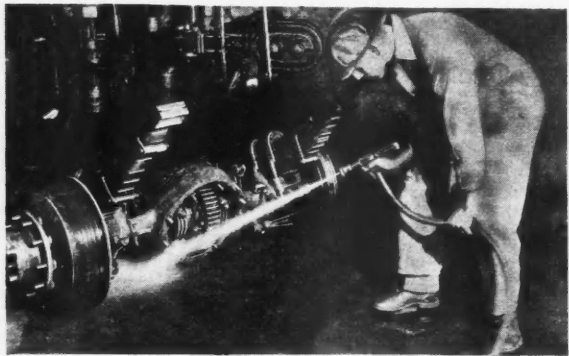
Don't overlook the extra savings this Car Washer makes possible.



A POWERFUL SPRAY

... yet it won't injure the finish

Weaver Car Washer sprays atomized water and air under 300 lbs. pressure—uses less water and flushes off the dirt without injuring car finish.



SPECIAL ATTACHMENT

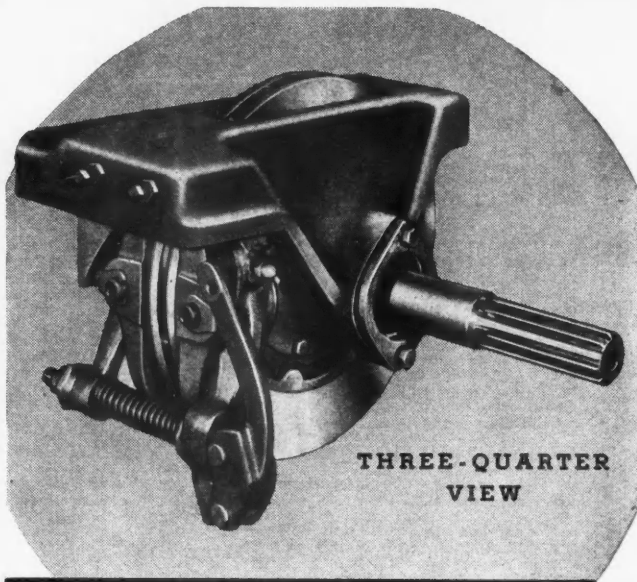
mixes kerosene with the spray to strip off grease, road tar and oil.

This simple Kerosene Attachment mixes small quantities kerosene or fuel oil in the spray, for cleaning greasy parts, motors, gears, etc. Also strips off easily the most stubborn road tar, even when old, dried or caked.

This feature alone will quickly save the cost of the entire Car Washer.

Available in one-gun and two-gun sizes. Write for full details.

WEAVER MANUFACTURING CO.
SPRINGFIELD, ILL., U.S.A.



THREE-QUARTER
VIEW

STOP smoothly •
quietly • quickly •
surely

High power and high speeds make positive braking all the more necessary. The bus or truck must stop with plenty of margin for safety even when loaded to the limit.

Now that Tru-Stop models are available, braking problems, even at high speed, are easily solved.

*for Chevrolet and Ford V-8
Trucks and Buses*

Tru-Stop Emergency Brakes are powerful. They are self-cooling and do not overheat. Braking pressure is distributed evenly over lining surface hence relining is needed seldom while brake efficiency is maintained constantly.

Tru-Stop Emergency Brakes operate in direct proportion to driver's pressure on the brake lever. There is never any grabbing or chattering. Any good mechanic can do a perfect job of installation. Your drivers can take care of adjustments.

Any further information you may wish will be cheerfully sent upon receipt of a request.

The Tru-Stop Emergency Brake is also available for quick installation in large trucks and buses.

AMERICAN CABLE COMPANY, Inc.

Automotive Division, Bridgeport, Connecticut

District Offices: New York, 230 Park Ave.; Chicago, 400 West Madison St.; San Francisco, 630 Third St.

An Associate Company of the
American Chain Company, Inc.

Manufacturers of the famous WEED TIRE CHAINS

In Business for Your Safety



TRU-STOP
EMERGENCY BRAKE

for Chevrolet and Ford V-8 Trucks & Buses

COMMERCIAL CAR JOURNAL
AUGUST, 1936

The
**MODERN PIEMAN
USES EDWARDS**



PIES—6,000 of them in 600 trays of 10 each—are daily loaded on this Edwards trailer. Delivered over an 80 mile radius. Owned by the Jackson Baking Co. of Troy, Ohio, who turned to trailers because bigger payloads can be hauled for such little extra cost that they are money ahead. And, like other experienced truckers, they chose Edwards from the field. Edwards battleship construction and many outstanding features account for its growing popularity among men who appreciate low cost and high quality. Check up on Edwards before you buy. Sold by dealers everywhere or write.

EDWARDS

EDWARDS IRON WORKS, INC., SOUTH BEND, INDIANA

**QUALITY
SEMI-TRAILERS**

THAT SHE BLOWS! AND SIX CENTS WOULD
FIX IT WITH

Sani-Flush



Send for
a
Free Trial

Beware of a clogged radiator. It runs up cost of operation. It leads to expensive repairs. Keep radiators clean and motors cool with Sani-Flush. A cleaning costs only 6c per passenger car (15c for largest trucks, buses, and commercial tractors).

Sani-Flush is perfectly safe. It is not caustic. Cannot hurt aluminum cylinder-heads, fittings or motor block. Sold in economical 25-lb. pails. At all grocery, drug and hardware stores or jobbers. Write on your firm's stationery for a generous free sample. Try it for yourself. No obligation.

THE HYGIENIC PRODUCTS COMPANY

220 Seventh Street

Canton, Ohio

COMMERCIAL CAR JOURNAL
AUGUST, 1936

K SAFETY LIGHTING EQUIPMENT

**It's Easier to Obey Laws
Than to Pay the Penalty**

ENFORCEMENT grows sterner every day—operators **MUST** install safety lighting—so why not comply with approved K-D Products?

K-D SHO-TURN
right and left
turn indicator

Improved and approved. Eliminates hand signalling. Extreme visibility. Special lens. Semi-automatic switch. Positive in action—never fails.



K-D TRIFLEX
improved and approved
America's greatest shatter-proof
reflex reflector. Thoroughly
reinforced.

Write for free chart of state lighting laws



THE K-D LAMP COMPANY

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Dollar for dollar, Shuler Brakes
are the *best buy* on the market.

They are considerably less
expensive than any
equivalent brake
you've ever seen
—*vastly better*

than any brake
sold at the same price
. . . . *Compare* — that's
all we ask. Full details on
request.

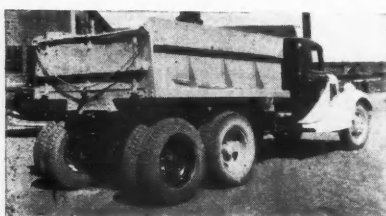
SHULER AXLE COMPANY

INCORPORATED

2901 Second St.

Louisville, Ky.

SHULER MECHANICAL BRAKES



**8-TON
LOADS**

2-TON ECONOMY!

Boost payload capacity and you boost profits! That's one reason why fleet operators everywhere are converting their units to Acme Six Wheelers! The other reason is: Acme Six Wheelers give you heavy truck capacity with light truck economy!

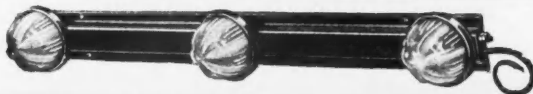
Acme Six Wheelers are strong enough to handle more than their rated capacity. The 3 $\frac{3}{4}$ " tubular axle has 16" Brakes. Strong reinforcing channels extend under the cab in front, and far enough in the rear to give plenty of support for maximum length body. Heavy duty springs will support maximum loads over the roughest going. And every part is guaranteed for life against defects in material or workmanship!

Acme Six Wheelers are money-makers! The initial cost of converting your fleet or single units is remarkably low! Write to us. Let us show you how to boost your profits.

**ACME
SIX WHEELER
COMPANY**
Cadillac, Michigan

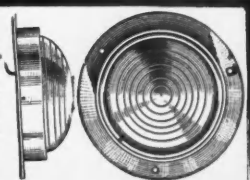
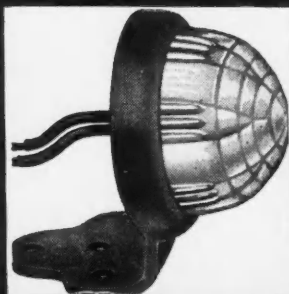


Better Truck Lighting Equipment

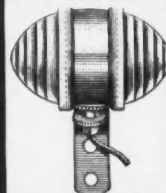


No. 1132. THREE WAY LIGHT. Patented construction. Positive contact. One piece wiring assembly of brass, bakelite insulated.

No. 1136. The SWA-BAC is the original all rubber Clearance Lamp. Tough and very flexible. Withstands excessive vibrations as well as severe shocks. Bulbs last longer. Lenses are not so easily broken. Do not accept a substitute.



No. 1240. FLUSH TYPE
CLEARANCE LAMP. Di-
ameter 4 in. overall.



No. 1255 TWO
WAY CLEAR-
ANCE LAMP.
Sturdily built.
Body bolted to
bracket.

Can be purchased from leading jobbers and accessory stores
thruout the United States. Descriptive literature sent on request.

DO-RAY LAMP CO.
1458 S. Michigan Ave. Chicago, Illinois

HANDLE 10-TON LOADS WITH GREATER SPEED AND AT LOWER COST

Motor freight lines, warehousemen and other users of heavy-duty trucks are changing from big, high-cost trucks to Ford V-8s. Experience has proved that Fords can handle these heavy loads, maintain faster schedules and reduce pick-up, delivery and hauling costs. Evidence of this is contained in a letter from U. S. Truck Company, Detroit.

"We were one of the first truck companies to use Ford V-8 Trucks on a large scale. The familiar sight of these smart, flexible Fords moving swiftly through the metropolitan district of Detroit, making deliveries to our customers in the morning and pick-ups during the late afternoon, caused considerable comment in shipping circles at the time. As Ford V-8 Trucks were improved, we absorbed more of the new types into our organization with the result that Ford V-8 Trucks have contributed considerably to our most successful year of operation. Their

economy in oil and gasoline mileage is a great factor in reducing pick-up and delivery costs and their ability to handle 8- to 10-ton loads has made it possible for us to use our Fords to greater advantage and with greater speed as time goes on."

It is good business to find out what Ford V-8 Trucks can do for you. Call your Ford dealer today and set a date for an "on-the-job" test with your own loads, under your own operating conditions.

FORD ANNOUNCES NEW DE LUXE EQUIPMENT FOR TRUCKS AND COMMERCIAL CARS

Low additional cost. See your Ford dealer for full details and prices.

Any new 112-inch wheelbase Ford V-8 Commercial Car can be purchased for \$25 a month, with usual down-payment.
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FORD V-8 TRUCKS

OIL FILTRATION MANUAL

For Automotive Internal Combustion Engines

WHEN IS OIL IN "GOOD CONDITION"?

A Summary of Modern Methods of
Filtering Crank Case Oil

by

Walter C. Bauer, M.E., B.Sc.
Chief Engineer

This manual contains a complete and scientific discussion of the proper lubrication of internal combustion engines and of the importance of clean oil.

This manual also includes a short comparison of the operating efficiency of various types of oil filters—the results of over 10 years of research and testing in the development of the Briggs Clarifier.

Fleet owners and shop superintendents will find much useful and interesting material in this brief manual.

If you are interested, we shall be glad to mail you a copy—without obligation, of course. Use the attached reply coupon.

BRIGGS CLARIFIER COMPANY

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Washington, D. C.



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3262 K Street, N.W.
Washington, D. C.

Gentlemen:

Please send me, without obligation, your "Oil Filtration Manual."

My fleet consists of trucks.

Make of trucks

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Address

City State

Commercial Car Journal

Advertising
Increases

94%

That is the record for 1935, compared with 1934, and every issue in 1936 has carried more advertising than the corresponding issue of 1935.

The reasons, of course, are that COMMERCIAL CAR JOURNAL has a circulation of 30,000 monthly—

That COMMERCIAL CAR JOURNAL has the largest and best Truck Fleet Circulation in the world—

That it leads editorially—

That its readers respond to its advertisers.

It's Always Wise To Tie
Up To The Leader

COMMERCIAL CAR JOURNAL

A Chilton  Publication

CHESTNUT & 56th STS.
PHILADELPHIA, PA.



The successful operator can not afford to overlook even the smallest item of cost, because low maintenance may depend on a multiplicity of details.

Trucks equipped with BLOOD BROTHERS UNIVERSAL JOINTS have established a truly remarkable record of uninterrupted service under hard, punishing work. For road construction, snow removal and on gruelling, long distance freight hauls, BLOOD BROTHERS UNIVERSAL JOINTS have fully demonstrated their ability to stand up under punishment.

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The New "SERIES N" Needle Bearing Joints

Feature:

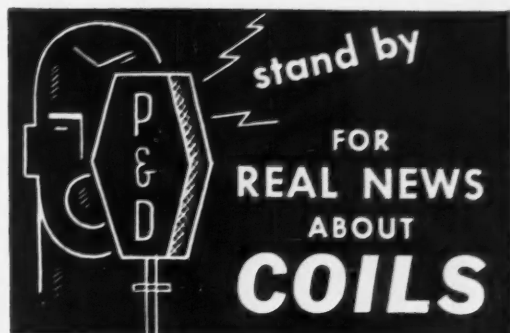
**Simplicity
Accessibility
Adaptability
Greater Angularity
Greater Capacity**

Yoke design is such that plain yokes can be used as easily as flanges, yokes and companions at a saving in cost. Flanges, yokes and companions can be furnished however when required. The "Series N" Joints are made in four sizes: 4N—5N—6N—and 7N.

Our Engineering Department will be glad to work with you on your requirements. Write for complete engineering data or any other information you may require.

**BLOOD BROTHERS
MACHINE COMPANY**
ALLEGAN MICHIGAN

COMMERCIAL CAR JOURNAL
AUGUST, 1936



BC 4 Universal Coil
For all passenger cars
and light trucks

BC 3 High Speed Coil
For hard starting motors,
radio equipped cars, etc.

BC 2 and BC 2X Heavy
Duty Coils For heavy
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UMC-3 Standard Capacity
Heavy Duty Condenser
For use with BC-4 Coil

UMC-2 High Capacity, Heavy
Duty Condenser For use with
BC-3, BC-2 and BC-2X Coils.

P & D SUPER DYNAMIC COILS and CONDENSERS

are in the spotlight. Striking improvements set them apart from all others. Super-Dynamic coils deliver more power . . . give longer life to contact points . . . save gas . . . end hard starting and loss of power.

They are "Perma-sealed" in a one-piece, aluminum housing, assuring perfect insulation, absolute protection against moisture and an even, air-cooled temperature!

P & D Super Dynamic coils and condensers emphasize a second meaning earned over a period of 25 years by the famous initials of their manufacturers: "Performance & Dependability!"

P & D MANUFACTURING CO., INC.
LONG ISLAND CITY, N. Y.

Basic Manufacturers of Genuine P & D
Ignition Replacement Parts since 1910



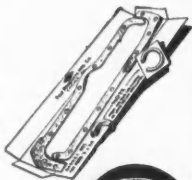


Pioneering in the early days of the replacement parts industry, Felt Products Mfg. Co. has kept steady pace with it—continuously perfecting and adding new items to its line as the need for them became apparent.

★ FEL-PRO GASKETS

Cork, Karropak, Paper, Felt, Asbestopak, Wirepak Gaskets, etc., in standard packages of 10, in oil pan sets, valve cover sets, complete sets, etc., enclosed in attractive wax lined envelopes or available in the famous Fel-Pro Blue Print Trays.

The line is unusually complete. Any gasket for any model of any car.



★ FEL-PRO GREASE RETAINERS

Absolute accuracy of fit; the ultimate in retainer efficiency, plus ease of installation. A complete line of all types of retainers—for all cars and all models.



★ ALUPAK GASKETS

For cylinder head and manifold. The famous soft-faced gasket that conforms to warped and irregular surfaces and hardens after installation. Also furnished in sheets.



★ FEL-PRO PUMP PACKING

A complete line of metallic pump packing; die-molded universal rings; special complete sets for individual cars; complete coil stocks and plastic packing. Also low-priced stock merchandising assortments and other automotive packings and specialties.



FELT PRODUCTS MFG. CO.

1518 Carroll Ave., Chicago, Ill.



SEMITRAILERS—

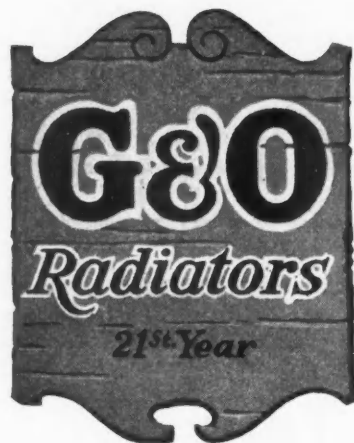
Improved design and increased strength make them more popular with operators everywhere.

Write for prices and specifications.

**KINGHAM TRAILER COMPANY
INCORPORATED**

LOUISVILLE

KENTUCKY

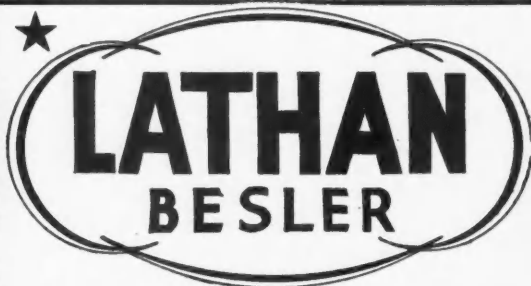


G&O RADIATORS ARE GOOD RADIATORS

(We Believe They're the Best)

They are designed and built for truck service. Strong, sturdy, efficient radiators that have been "delivering" for 21 years.

**THE G&O MANUFACTURING CO.
NEW HAVEN CONNECTICUT**



POWER BRAKE

With "LOCOMOTIVE CONTROL." Write for FREE Catalog.

LATHAN CO., Inc. SAN FRANCISCO—Polk and Pine
DETROIT—477 Selden Ave.

Watson-Brown-Lipe Auxiliary TRANSMISSION

—gives your truck
3 axle ratios

For every 1 to 3-ton truck. A multiple speed auxiliary that combines low, medium and high in one unit.



52% more power, 23% lower engine speed, if desired, 20% reported saving in gas, oil and engine wear. Write for literature and discounts.

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PURCHASING AGENTS

respect a record of performance

MR. JONES, THESE CORDS RINGS ARE SAVING PLENTY OF TROUBLE AND MONEY FOR US ON THE TEST TRUCKS"

"YOU'RE RIGHT BILL, WE'RE GOING TO STANDARDIZE ON CORDS RINGS FROM NOW ON"



"Cold" cylinder walls get oil at the first piston stroke from the "reservoir" action of Cords Rings, reducing wall-wear and increasing motor life!

If what we claim about *reducing* truck maintenance overhead and *increasing* motor performance with *genuine* Cords cupped segment piston rings is true, then you most certainly want to know more about this ring! Here's a sporting proposition! Test a set in one of your own jobs. We're willing to await the results.

Contact your nearest Cords dealer TODAY or write San Diego address below.

GET THE *Original* CUPPED SEGMENT RING
CORDS RINGS

CORDS Piston Ring Mfg. Co. • Box 922 San Diego, California
Factories also at Grand Island, Nebraska and Victoria, British Columbia



The Little Giant Frame Extension installed on this Wayne School Bus lengthened the wheel base from 157" to 207".

Sell Frame Extensions!

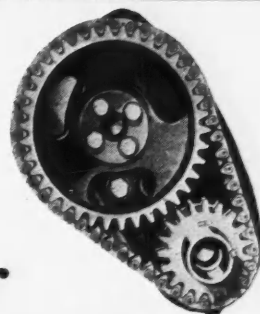
Yes, there's a market for them right under your nose. School busses . . . they're timely right now. Then there's Passenger busses, bakers, laundries, furniture dealers, wholesalers. Good business for you . . . if you go after it.

Little Giant Frame Extension enhances truck earning capacity by increasing loading space . . . reduces mileage and labor costs. Extends any type truck chassis to any length desired. Supplied in cut-frame or slip-on type. Roller bearings. Simple design and construction . . . dependable . . . easily installed . . . no "after-grief."

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1532 N. Adams St. Peoria, Ill.

LITTLE GIANT



For Original Equipment and Replacement

The widespread use of Morse Silent Timing Chains, as original equipment on leading cars, trucks and buses, is the result of demonstrably superior performance. The same qualities of quietness, dependability and durability, which make Morse Chains a favorite for original equipment, also make them the logical choice when replacement becomes necessary.

Call your dealer, or write factory direct.

MORSE CHAIN COMPANY

Ithaca, N. Y. Detroit, Mich.

Division of Borg-Warner Corporation

MORSE CHAIN COMPANY, Ltd. Letchworth, Herts, ENGLAND

MORSE

Standard Equipment
TIMING CHAINS

TRUXMORE

WORLD'S BEST 3RD AXLE

In Summer, Prepare for Winter

TRUXMORE

Stops Dangerous Jackknifing and Side-Skidding on Icy Hills
Cuts Costs—Doubles Hauling Profits—Replacing Semi-Trailers

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New York
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Binghamton, N. Y.
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Erie, Pa.

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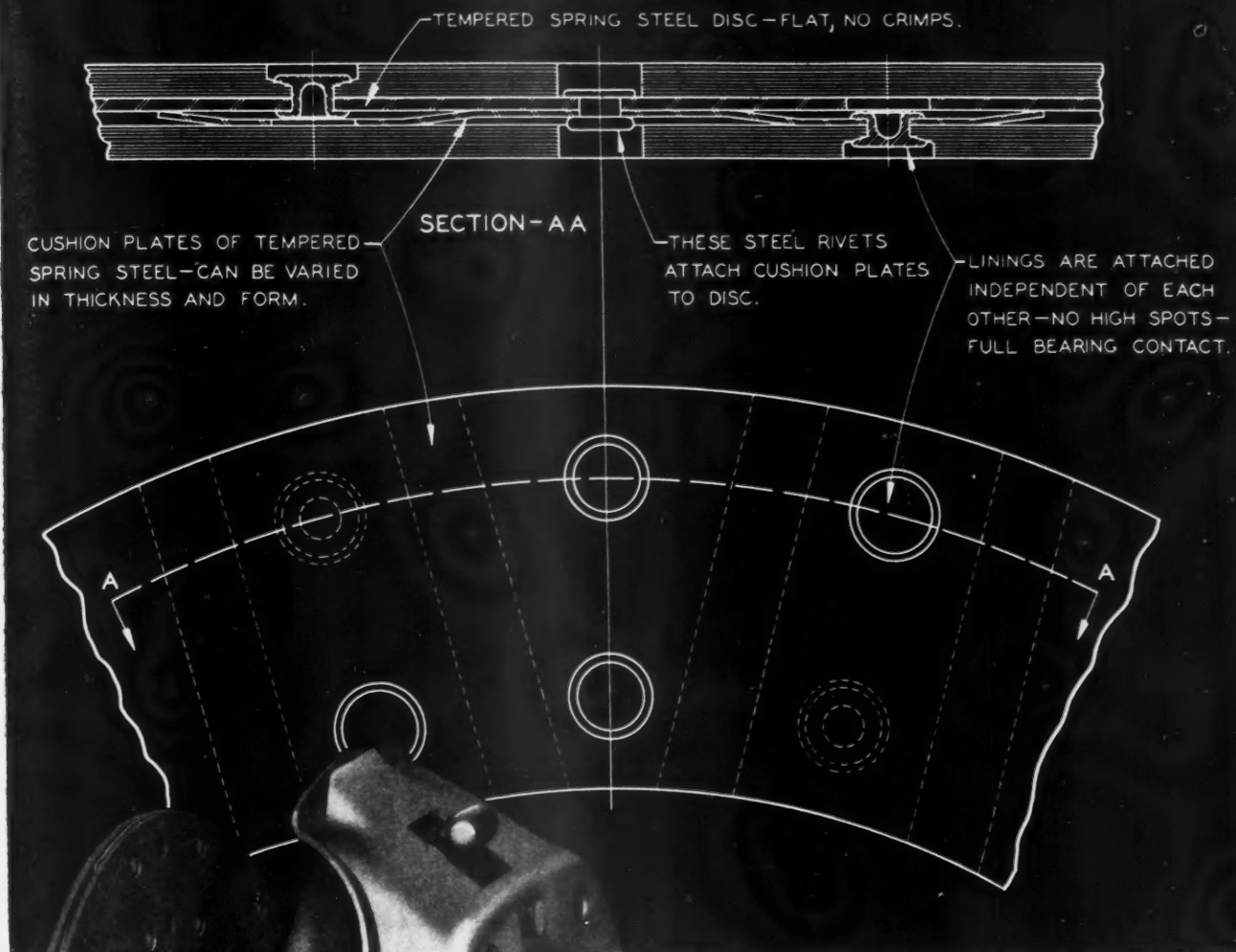
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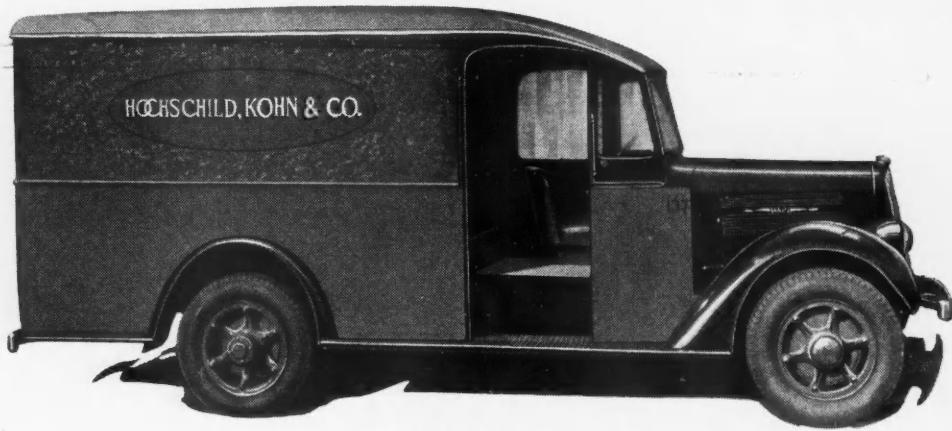


No Grab . . . No Chatter

The design of the new Long semi-centrifugal clutch permits the use of either moulded or woven linings on the driven member, depending upon wear and engagement requirements. Between the rear lining and disc are cushion plates of tempered clock spring steel which can be varied in form and thickness to suit individual requirements. The linings are riveted independently of each other and high spots of heavy unit pressure which result in grabbing and chattering are eliminated . . . another feature of modern clutch design developed and pioneered by Long.



LONG MANUFACTURING DIVISION
BORG-WARNER CORPORATION
 DETROIT, MICH. • WINDSOR, ONT.



MODEL 3428

YORK-HOOVER BODY CORP.

YORK, PA.

DESIGNERS

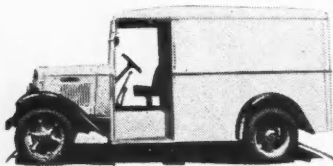
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BUILDERS

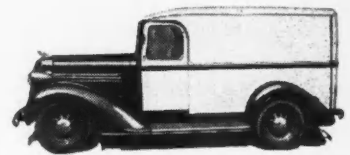
OF

MODERN

COMMERCIAL AUTOMOTIVE BODIES

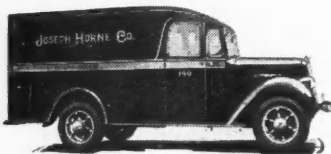


MODEL 3494



MODEL 3489

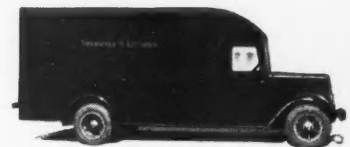
SPECIALISTS
IN FLEET EQUIPMENT



MODEL 3437

ALL STEEL — ALUMINUM OR
COMPOSITE CONSTRUCTION

OUR ENGINEERING AND
SALES ORGANIZATION ARE AT
YOUR SERVICE



MODEL 3425



MODEL 3201

COMMERCIAL CAR JOURNAL

AUGUST 1936

America's Toughest Truck!



Reo Gold Crown and Silver Crown engines are built for trucks. They are unmatched for brute power, stamina and flexibility. And they set new records for economy.

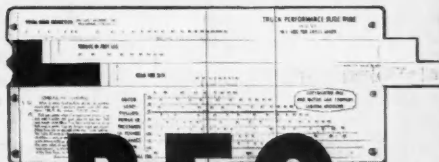
TOUGH trucks make money—and that's the sort of trucks Reo builds! Trucks that are everlastingly on the job, piling up trouble-free mileage—safe, fast trucks that make more trips per day, more profitable ton miles every month!

Reo engineers designed these new 1936 Reos to "take it" in any going. Built the bulldog chassis to handle peak loads. Improved the famous Reo truck engines—made them "power giants" and "fuel misers." Then styled these new Reos in attractive streamline beauty that is both practical and inexpensive to maintain.

Compare these tough new Reos with other trucks—point for point and dollar value for dollar value. Satisfy yourself that the 1936 models are the most economical, long-lived trucks Reo ever built. Ask your Reo dealer about Reo's Performance Guarantee and Ability Rating Plate which tells you exactly what your truck will do—makes it easy to check the extra quality built into every Reo truck.

Reo Speed wagons and Trucks range from 1/2 to 4-6 tons. Prices from \$445 up, chassis f.o.b. Lansing, plus tax. *1/2-Ton Chassis f.o.b. Lansing, plus tax.

\$445*
AND UP



REO

SPEEDWAGONS AND TRUCKS

Built and sold to Precision Standards. Ask your nearest Reo dealer to show you how the Reo Performance Gauge will insure the selection of exactly the right truck for your needs. Maximum economy is sure to result.

REO MOTOR CAR COMPANY, LANSING, MICHIGAN

TRUCK NEWS FLASH!

DODGE 1½ TON NOW \$505*

**"I'M SAVING
\$6 TO \$8 A MONTH
ON GAS ALONE"**

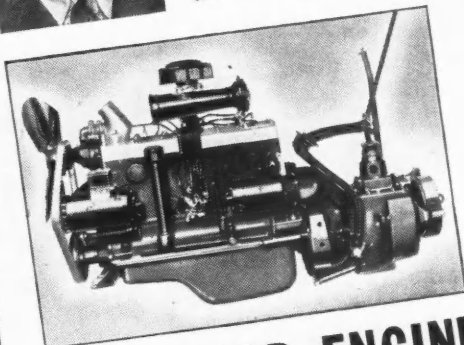
Says H. R. Preskill
Vice-President, Preskill Lumber Co.
Chicago, Illinois



"Any truck buyer who will take a few minutes to check up will find that only Dodge of the three lowest-priced trucks gives a combination of safety-steel cab, genuine hydraulic brakes, and six special gas and oil-saving advancements. I'm saving \$6 to \$8 a month in gas alone with my new Dodge."



1½-Ton 136" W.B. Chassis and Cab (Trailer, 5th wheel, and special equipment extra) ... \$605*



**"L"-HEAD ENGINE
6-CYLINDERS**

Saves Both Gas And Oil!

Only Dodge of the three lowest-priced trucks gives you this money-saving type of engine. It has six special gas and oil-saving features—yet it's simpler, saving less for service! From coast to coast owners report that "It saves up to \$95 a year on gas alone." Ask your Dodge dealer to let you borrow the little machine that shows how far any truck, new or old, goes on a gallon. Give yourself a gas economy "show-down" of Dodge against any other old or new truck. See how much money Dodge will save you on gas! See your Dodge dealer today!

DODGE

Division of Chrysler Corporation

**DODGE PRICED WITH
THE LOWEST YET BUILT
TO OUTLAST THEM ALL!**

No wonder truck buyers from coast to coast are swinging to Dodge in ever increasing numbers! The fact that Dodge—with all its extra quality features—is priced down with the lowest, still is the biggest news of the year in the truck business.

Ask your Dodge dealer for a copy of the "Show-Down" Score Card. It compares all three lowest-priced trucks feature-by-feature for you in plain black and white. Check up for yourself how far ahead Dodge is in money-saving features.

Check These Values

1½-Ton Chassis—136" W.B.—6-cyl.	\$505*
1½-Ton Chassis & Cab—136" W.B.—6-cyl.	\$605*
1½-Ton Stake—136" W.B.—6-cyl.	\$690*
1½-Ton Chassis—116" W.B.—6-cyl.	\$370*
1½-Ton Pickup—116" W.B.—6-cyl.	\$500*

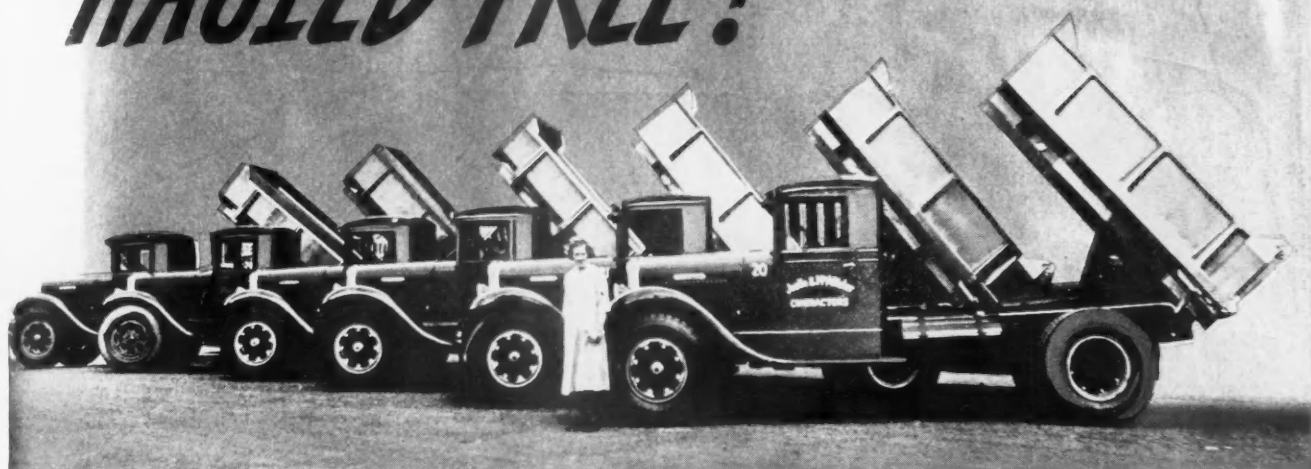
*List prices at factory, Detroit, subject to change without notice. Special equipment, including dual wheels on 1½-ton models, extra. Easy terms gladly arranged to fit your budget, at low cost, through Commercial Credit Company.

**MAKE THE FREE GAS TEST...GET THE
FREE "SHOW-DOWN" SCORE CARD...
SEE YOUR DODGE DEALER TODAY**

\$370*
¾-TON CHASSIS 116" W.B.

Dependable **DODGE TRUCKS**

34,000 CU. YARDS OF *Bonus Load* *HAULED FREE!*



For Joslin and McAllister, Contractors, the Brown Metal Works of Spokane recently constructed 6 dump bodies of Alcoa Aluminum.

6 months later this letter:

Brown Metal Works
East 404 Sprague Avenue
Spokane, Washington
Gentlemen:

We are well pleased with our new Aluminum Dump Bodies, as they have shown little or no wear, after six months of constant service.

During the six months of operation, they have hauled 34,000 cubic yards free of cost, over the ordinary steel type construction. These light weight units have also increased the speed of our operations.

With these facts in mind, we are glad to recommend Aluminum Dump Bodies for greater profits.

Yours very truly,
JOSLIN & McALLISTER

after another 6 months:

Brown Metal Works
East 404 Sprague Avenue
Spokane, Washington
Gentlemen:

After more than a year of operating with the Brown-Built Aluminum Dump Bodies with which you equipped our fleet of International trucks, we take pleasure in advising you that same have given complete satisfaction, in fact, they have exceeded our expectations.

The bodies have been used in highway surfacing operations and at this time show but slight wear. Due to the light weight of the body we are enabled to carry more payload during surfacing operations, and to transport more tonnage in moving from one project to another, and we take pleasure in recommending highly "BROWN-BUILT ALUMINUM DUMP BODIES."

Yours very truly,
JOSLIN & McALLISTER

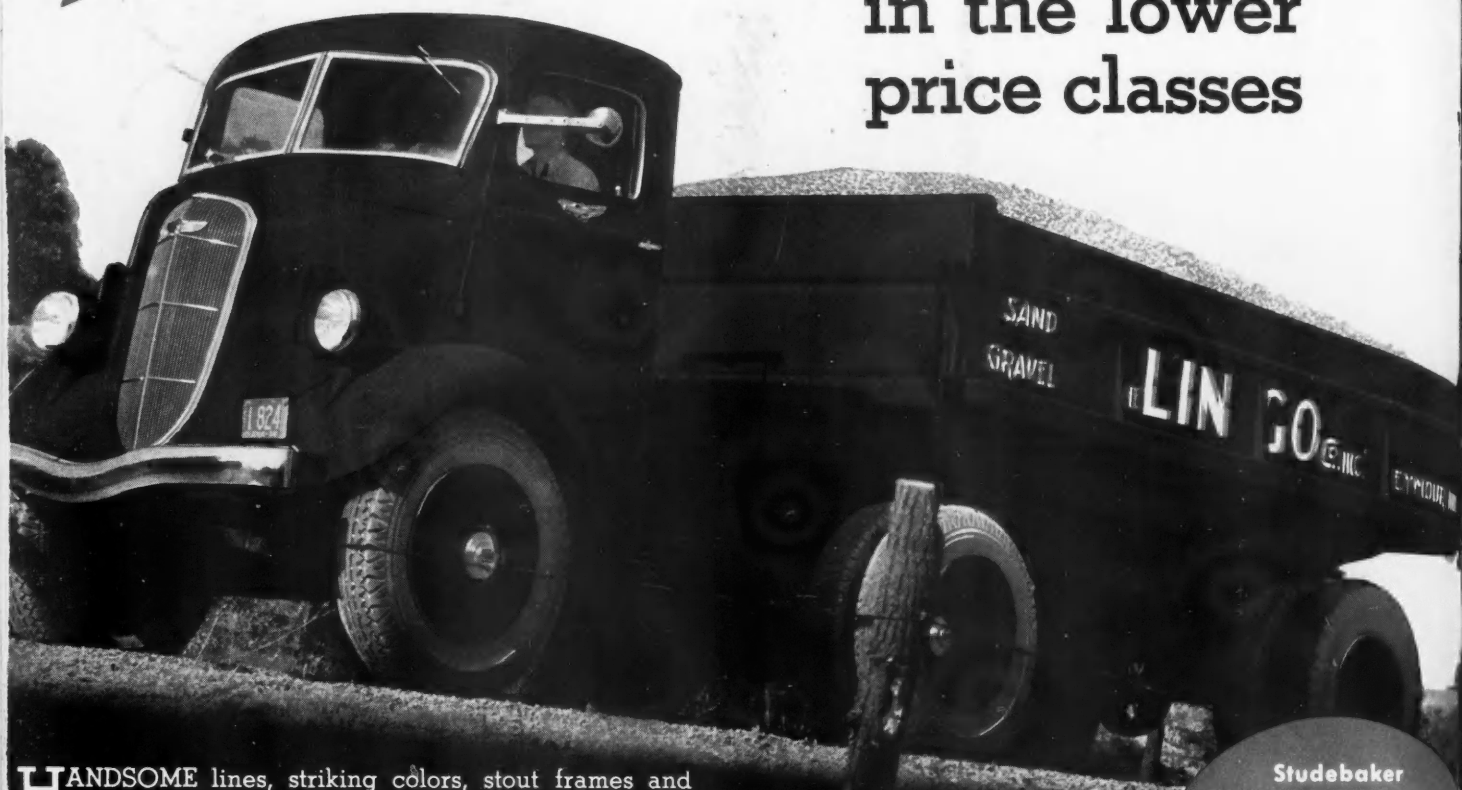
Let us send you the book, "Alcoa Aluminum for Truck Bodies." It contains operating figures and construction data. ALUMINUM COMPANY OF AMERICA, 2139 Gulf Building, Pittsburgh, Pennsylvania.

ALCOA  ALUMINUM

GREATEST

Pulling Power

OF ALL TRUCKS
in the lower
price classes



HANDSOME lines, striking colors, stout frames and springs and axles—all have their valued place in determining truck worth. But *pulling power* is still what a man wants to move loads.

Studebaker has it . . . has more of it, model for model, than any other line of trucks of like price. Power at moderate and low speeds—downright, tough, settle-into-the-collar *pulling power*—which is something different from peak horsepower at top r.p.m.

Torque, they call it in the engine-testing laboratories. But pulling power is what John Driver hopes he's got when the going gets hard and he has to step harder on the gas button.

Whether you choose the sensational new close-coupled cab-forward type of chassis shown above, pioneered in the low price field by Studebaker, or one of the Standard Series, you'll get more pulling power for your money in a Studebaker . . . and more *truck*, from grille to tailgate. Service and showrooms everywhere.

THE STUDEBAKER CORPORATION
Truck Division South Bend, Ind.

The 1936 1½-ton and 2-ton Studebakers are the world's only trucks offering an

AUTOMATIC HILL HOLDER!

It eliminates costly accidents that result when trucks roll back down an incline while the driver moves his foot from the brake to the accelerator pedal.

Studebaker
Trucks priced from

\$565

upward, chassis at the
factory



STUDEBAKER TRUCKS

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